Portfolio of Academic Practise

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1 Introduction

I see my professional development as a process of lifelong learning which in my case started directly after I had left school when I began to teach adult evening classes. I have always loved teaching, in particular new subjects or unusual courses, for example, light design for film and media. For that reason this portfolio is not just a snapshot of my teaching practise at the university but starts early in my life and will hopefully help me in the future to develop my teaching even further.

My Portfolio of Academic Practise is structured in the following way: I’ll give first a summary of my past and present experience as an academic. Then I’ll present my philosophy of academic practise and then make my claim linking it to the evidence in section 7.
2 My past key teaching, research and administrative responsibilities and experience

I’ll do this section autobiographically because I have done different things in my life which directly or indirectly contribute to my professional role as an academic.

I started teaching in adult education quite early at the age of 19 when the manager of the adult education department of Herten council approached me if I could teach computer related subjects for adults. At that time I was already a well known “geek” in Germany because I had won a youth science competition (“Jugend forscht”) which involved poster sessions and a PhD like viva.

From 1990 to 2000 I taught different computer related courses which ranged from simple word processing to programming languages. All of these courses were designed by me with the help of some senior people. I found teaching computing quite a challenging subject because of the learning speeds of different students. Besides of the challenges of the subject I also learned how to lecture, how to support individual students and how to design courses in adult evening classes (see, for example Fig. 8).

In parallel I developed skills in the media industry which are now also beneficial to my role as an academic. About at the time when I started teaching adult education courses I also got interested in radio broadcasting and joined a radio society which eventually got two hours of air-time every week on a local radio station in the Ruhr valley. The broadcasting skills then got me a job as sound technician at Herten council where I set up a professional PA system which I maintained for a couple of years. During the work as a sound technician I also learned light design just by doing bigger and bigger events which eventually lead to senior posts from 1998-2000. In that role I managed bigger events, for example theatre productions in special locations like disused churches, swimming pools, warehouses and other locations without any infrastructure. I think for my professional development as an academic the time in media has been invaluable. I have learned to work towards tough deadlines and managing real-time situations (theatre and radio).

I have got a degree in Physics (German diploma, 7 years) and a degree in communication science (German master, 7 years) which I studied at in parallel and did it along with the jobs mentioned above. Studying physics was a very rewarding and interesting time. Against prejudices, physicists are very social and we met every morning and discussed results together. Mathematical problems in physics are usually so difficult that it is impossible to
solve them in the solitude of your home. You have to cooperate. Physics provided me with the right tools to pursue my professional career in academia. In particular difficult subjects like theoretical quantum mechanics or theoretical thermodynamics cannot be learned from a textbook alone. With the tools I’ve learned during my physics degree I can now understand easily all mathematical papers and can also learn very quickly new mathematical tools which is important just now in my teaching, in particular in signal processing and acoustics.

I did my final year project in physics at the department of neurophysiology where I also worked on a part time basis as a lab technician. In that department I learned how to develop circuits for neurophysiological recordings and how to write software in C++. My final year thesis lead finally to two publications and a patent (Porr and Wörgötter, 2000; Porr et al., 1998; Porr and Wörgötter, 2002). My supervisor Florentin Wörgötter was a great help that time to write these papers. Since then we have been working and cooperating together. The experience at the department of neurophysiology has been invaluable for my work now as an academic because I learned neurophysiology just by doing it and not from textbooks. By the time I left I had a sound understanding of neurophysiological recording techniques and also how to analyse data.

Interestingly, the whole experience with communication science was the opposite compared to the other work I had done in physics. My fellow students put a minimum amount of work in the subject which I found very frustrating. While in physics discussing or criticising work was always welcomed, in communication science criticism was plainly perceived as offensive. The role of the professors in that whole process was also rather de-motivating: they just set the subject of the whole course and then leant back and listened for the rest of the term. Also, the suspicion arouse that many essays had never been marked properly. For example, one of my essays received the best mark where I had forgotten to replace place-holders in footnotes by real content. However, I made this degree to my personal challenge by concentrating on constructivism and social systems. I received strong support from one of the PhD students who also worked on social systems by that time. I wrote my final year thesis about Niklas Luhmann’s system theory because I saw a strong link to physics and natural sciences in his work. Consequently, I compared Luhmann’s work to theories in natural sciences and finally published that work (Porr, 2002).

Reflecting about my two subjects I would say that studying physics has been a very rewarding experience and that I would do it again. However, I would never study communication science again because I think that I’m not the person who can study 7 years with minimal engagement and just
enjoying the free time in the cafeteria. This might sound a bit polemic but it reflects my disappointment: I started communication science with great expectations after had worked for radio/theatre. Looking back I should have produced a couple more radio plays or features instead.

Between 1998 and 2000 my role as a teacher expanded further when I started teaching light design at the university for the film and media studies. This was a hands on course where we had the stage at the university for ourselves for a couple of days and then went through the hole process of lighting. By that time I was in charge of rather big events in the Ruhr valley and could also get these students sometimes jobs in the media business.

In 2000 I left all my activities behind me and went first to Stockholm as a PhD student and then I was offered a job as an RA in Stirling where by former supervisor Dr Wörgötter had just become professor. In Stirling I continued my PhD and my work as RA where Dr Wörgötter gave me great deal of freedom. I decided to work on learning and developed the so called ISO-learning (Porr and Wörgötter, 2003; Porr et al., 2003). To gain experience with teaching at a British university I offered electives for psychology students. I’ll elaborate more about them below.

After my PhD I applied successfully for a business startup grant to develop a Linux data acquisition device which lead to two products which have been on the market for the last 2 years\(^1\). The underlying company is ITL which does the marketing.

After having spent one year on the development on this product I decided that I have to move on and became lecturer in Glasgow where I still work.

3 The current context

I’m lecturer at the Department of Electronics & Electrical Engineering at the university of Glasgow. I was appointed on 1 may 2004.

3.1 Teaching

My teaching duties at the department have been so far:

- Acoustics and audio technology: lecture and assignment, 4th year, 4 times a week.

- Digital signal processing: lecture and lab sessions, master of science, once a week, 2 hours lecture and 3 hours lab.

\(^1\)http://www.linux-usb-daq.co.uk
• Psychology of perception: lecture and 3 assignments, 2nd year, 2 times a week.

• Acoustics for music students: lecture and lab sessions, 1st year, once per week, 1 hour of lecture and 3 lab sessions of 2 hours each.

• Team design project: small group process where the students have to build a robot. Weekly meetings with the supervisor and constant e-mail exchanges.

3.2 Research

My main research interest is in the area of neuronal learning and synaptic plasticity (Porr and Würgötter, 2001, 2002; Porr and Würgötter, 2003; Porr and Würgötter, 2004; Geng et al., 2006). When I came to Glasgow university my first aim was to improve my learning scheme which lead one year later to a new learning rule which we call ICO learning (Porr and Würgötter, 2006). I also started a cooperation with the department of pharmacology at the University of Strathclyde which triggered my interest in the limbic system on which I work at the moment. Early investigations into the limbic system lead to a new learning rule which we call ISO3 learning which will be presented at different conferences during this summer.

3.3 Administration

Because of the high teaching load the head of department hasn’t assigned any work intensive administrative duties to me. I’m maintaining the Linux machines just now in the lab for teaching and project work.

I’m involved in the organisation of the open day (theme: “robotics”) at the university and I have been working with private school children to promote engineering (ISCO-day).

4 Philosophy of Academic Practise

My teaching philosophy is based on a paradigm which is called constructivism. This paradigm is not a fixed way of thinking. It is rather a collection of ideas from different disciplines.

One of the roots of constructivism is cybernetics which deals with closed loop systems. Closed loop systems can be found in either technical applications (D’Azzo, 1988) or in biology (Foerster, 1960; Ashby, 1956; Porr and
Wörgötter, 2005). I will concentrate on biological systems, in particular humans. A biological closed loop system is a system where the actions of an agent in turn give feedback to its inputs. The feedback is established by the environment that surrounds the agent. Changes in the inputs cause again actions. Closed loop systems exist because of our incomplete knowledge about our environment. If we knew everything about our environment we would not need any feedback. We would just issue an action without sensing the consequences. The world would be completely predictable. However, in the real world we never have complete knowledge about our environment. We will always encounter situations that we can or cannot predict. The environment provides surprises. Ashby (1956) called these surprises disturbances. Thus, in a real life situation we can’t be sure that our actions lead to the expected result. We might realise that our favourite hair-dresser has switched to Gothic hair styles or that we suddenly encounter a tiger in a part of a jungle where we have never seen a wild animal before. The organism must be prepared for the unpredictable in the environment. It must have the ability to react and adjust itself to reach its goals and to protect itself.

Figure 1: The organism as a closed loop system. H transforms sensor events into motor outputs. P transforms motor outputs into sensor events. The only thing that can be perceived by the organism are actions fed back via (a). Anything that does not feed back cannot be perceived and cannot establish goals.

Another milestone towards constructivism has been achieved by Foerster (1960, 1985): While Ashby observed the organism from the outside as a feedback system, von Foerster radically employs the internal perspective of the organism. He describes how a closed loop system operates from its own perspective. The crucial difference between the internal perspective and the outer perspective is how closed loop systems observe (!). Von Foerster claims that closed loop systems can only observe with the help of their closed loops. Therefore, the only aspect which can be observed is the closed loop which establishes the feedback from the motor output to the sensor input (see
To make it clearer: the organism can only use its own senses to judge if an action has been successful or not. It cannot perceive the action itself. It can only perceive the consequences of its actions. This leads directly to the question of how an organism evaluates its actions. The answer is simple: only by its own sensor inputs. This leads to a very famous statement by von Glasersfeld where he claims that organisms control their inputs and not their outputs. Organisms use actions to adjust their sensor inputs. Not the other way around. The contradiction between input- and output-control can be made clear by an example, which I call the second chicken/egg problem: Let us interpret the chicken as a closed loop system. The chicken wants to keep the egg. It acts in a way designed to increase the sit-on-the-egg-time. The farmer, however, wants to have the egg. The farmer perceives the hen as an input-output system: food in and egg out. The hen however, operates as a closed loop system. The farmer is just a disturbance. As soon as the farmer removes the egg it will produce a new egg thereby restoring its desired state. External and internal perspectives are fundamentally different. Von Foerster claims that we all have only the internal perspective at hand. We always act as closed loop systems. However, we might see other systems as open loop systems.

This now leads to the question how the environment is perceived by an organism. The environment is evaluated against the goals of the organism and therefore the feedback system. If the goal can be reached by an appropriate action then everything is fine. For example, we go (action) to a restaurant and get nice food (sensor input). However, we might go to a restaurant and it is closed. This is something which we haven’t expected. Consequently, we have to change our plan (actions,policy). Constructivists call such unexpected events disturbances (Ashby) or perturbations (Maturation). Anything which does not lead to an expected event is interpreted as a disturbance. Organisms might just get on with their life without changing their behaviour or they try to learn from the recent failure. Thus, only those parts of the environment are perceived by the agent which have an impact on its self-referential operations. Anything else cannot be perceived and is therefore noise.

Luhmann (1995) has developed a communication model, which complies with the ideas of constructivism. Communication has to be seen in the context of disturbances. If an organism perceives the environment as a disturbance it also perceives other organisms as disturbances. This is reciprocal and leads to the idea of double contingency. An organism communicates with another one by disturbing it. This means that actions of organism A are interpreted by organism B as a disturbance. However, not all actions of A will result as a disturbance to B. Only actions by A which interfere with the
goals of B become disturbances for B. Thus, for Luhmann communication is reciprocal disturbance; this leads to a new radical understanding of communication. Communication is not the transmission of information but the reduction of uncertainty on both sides. Consequently no common vocabulary on both sides is necessary as long as the reciprocal reactions are predictable. For example, a teacher might think that pupils are quiet because they are listening to her/him. However, the pupils know that making noise causes unpredictable or unwanted outcomes. Instead they are playing their card game silently under the desk.

4.1 Consequences for teaching

Firstly, I'll consider the worst case scenario, namely lecturing to show how constructivism can be applied to teaching. Such a form of teaching assumes that I can transmit information to the student in the form of information “buckets”. I encode information and they decode it. Information may be lost but in general a fraction of it will arrive at its destination (the receiver). This form of information transmission is the typical Shannon and Weaver model used in telecommunication (Shannon and Weaver, 1949). In the context of the 2nd chicken and egg problem I treat the students as input-output systems. I store information in them and then I retrieve the information again. The students, however, operate as closed loop systems with their own goals. I’m not part of their closed loop systems, I’m rather a disturbance. As a consequence, the students will find quite unwanted strategies to cope with me. The minimal way to survive in a lecture is just to sit there. This is perfectly acceptable behaviour because they don’t disturb me and I have the illusion that they listen to me. The problem is that the consequences of this behaviour only become apparent to the student when it is already too late: during the exam. The exam provides the final consequence of their actions (or non-actions) in the lecture. The exam provides the only feedback in this scenario which is obviously too late.

The problem of lecturing is that there is virtually no feedback. The solution is obvious: I have to introduce feedback before the final exam. In general: the more feedback I provide the earlier the students can learn from mistakes and the better will be the learning outcomes (Sadler, 1989). Note, that I make a difference between skills and recall. To reproduce a lecture, only one skill is needed (good memory). A skill is something more: The student has actually developed a new closed loop through the environment which means that the number of possibilities have been increased. Thus, she/he is able to solder, to build a robot or to write a scientific paper. The student has acquired a new skill and is not just able to reproduce my lecture.
It is therefore in the spirit of Heinz von Foerster who demands that we act in a way that we increase the number of possibilities (Foerster, 1985). Not only our possibilities but also those of our students.

4.2 Consequences for research

In research I take Luhmann’s point of view which states that the scientific system exists in the social domain. Science is about the interaction between scientists. Science is a collective exercise where people condition each other in highly specialised sub-groups. Science is not so much about the single researcher but about the emerging dialogue.

However, how does this work in my case? In the first instance I am a single researcher who develops new ideas, theories and sometimes new paradigms. As long as I just sit in my office on my own all my ideas will become self-consistent as long as I am communicating them to myself rather than communicating them to the outside world. In terms of constructivism, this means that there are no disturbances. As long as I act selfreferentially everything is fine.

A good scientist, however, has to seek criticism from different sources. This means in terms of constructivism that I’m looking for disturbances deliberately. Criticism causes irritation and uncertainty in the first place. It forces me to think my ideas over: I have to revise an article or I have to modify a talk. However, in the long run I regain certainty as a result of learning from criticism. Seeking uncertainty or criticism gives me more certainty in the long run: The next talk will be better and the next paper might only need minor changes. Consequently, I am aiming to give presentations as often as possible.

I remember a talk in Stirling which saved me from an embarrassing mistake in a publication which I was preparing for at that time.

Besides the formal talks the informal discussions over coffee are also a very useful form of getting immediate criticism about my work. Important ideas of my career have emerged in quite informal settings like in the common room, in cafes or even pubs. This does not mean that the actual discussion has to become shallow. In contrary sometimes discussions become very emotional which stimulate new ideas.

It is not only me who has to seek criticism but also my PhD students. I therefore think that it is for them important to give as many presentations as possible. As long as they work on their own they will “feel good”. However, they have also to learn to deal with criticism and to learn to actively seek it. I see this as my responsibility. From January there we will have regular talks from PhD students.

In a face to face discussion it is obvious that disturbing each other is
a reciprocal process. Thus, in such a situation it is not only me who gets
criticised but also the other person will be disturbed. In any situation I
also cause irritation or novelty in a partner, audience or readership. Thus,
disturbance is always reciprocal which Luhmann calls “double contingency”.
The reciprocal criticism finally becomes a social phenomenon which is called
the scientific system.

4.3 Consequences for administration

Administration is just now limited to a few minor duties to compensate for
quite a high teaching load. Administration just now has much to do with
the interaction of me and the workshop technicians. As a workshop techni-
cian you are basically reacting to demand. This situation can sometimes be
stressful because of the unpredictable nature of demand.

To avoid being the unpredictable factor I aim to notify the technicians
well in advance about their involvement in labs or final year projects. This
gives them the opportunity to plan ahead and work against contingencies.
For example, for the anechoic chamber experiment I have set up a forum in
moodle for the technician so that students can arrange a meeting with him.

The same applies to computing support. Computing people always want
to know what is going on in their network. Any activity which is unknown
can be a virus or another external attack. Consequently I inform them about
everything that I do with my network and what my project students are going
to do.

5 Claim

I’ll address the nine learning outcomes (“LO”: design, implementation, sup-
port, assessment, evaluation, reflection, record-keeping, management and
professional development) one by one in the next sections. Every subsec-
tion will contain at least two different example, which are mostly structures
on a course by course basis. I’ll provide usually two pieces of evidence for
every course or subsection. The underpinning principles (Table 1) are indi-
cated as “UP” in the legends of the evidence. The other abbreviations are :
“C” Course, “S” subject, “L” level, “W” who produced it and “H” how has
it been used.
Table 1: The underpinning principles as defined in the “NLTP Portfolio Guidelines September 2005-07”.

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<tr>
<th>Index</th>
<th>Principle</th>
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<tbody>
<tr>
<td>1</td>
<td><strong>Critical Reflection:</strong> Taking a critical approach to your practice, reflecting on how your plans work out, evaluating your teaching, reviewing it in the light of theory and research, identifying issues and working out strategies towards their solution.</td>
<td>34, 42, 57, 56</td>
</tr>
<tr>
<td>2</td>
<td><strong>Scholarship:</strong> Taking a research-led or a research-informed approach to your teaching and using as appropriate relevant and recent ideas and research in the fields of teaching, learning, assessment and policy in higher education to inform your practice.</td>
<td>42, 43, 44, 45, 46</td>
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<tr>
<td>3</td>
<td><strong>Learner Focus:</strong> Focusing your teaching on helping your students to learn to the best of their capabilities, encouraging learner responsibility and supporting autonomous learning.</td>
<td>2, 3, 4, 6, 7, 8, 9, 15, 16, 17, 18, 20, 21, 23, 24, 25, 26, 27</td>
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<td>4</td>
<td><strong>Difference and Diversity:</strong> Teaching in such a way that takes account of the different prior experience, knowledge and resources brought by students to the educational process, and which attempts to implement inclusive approaches to teaching, learning, assessment and student support.</td>
<td>2, 12, 13, 15, 16, 17, 18, 19, 20, 21, 21, 23, 24, 25, 26, 36, 51</td>
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<tr>
<td>5</td>
<td><strong>Ethics and Equity:</strong> Approaching your practice as an academic in an ethical way, based on a duty of care for your students, and in such a way that supports equity and equality of opportunity.</td>
<td>14, 20, 21, 35, 36</td>
</tr>
<tr>
<td>6</td>
<td><strong>Co-operation and Collaboration:</strong> Working in a collaborative and co-operative way with colleagues and peers.</td>
<td>3, 32, 37, 38, 40, 41, 48, 54, 55, 58, 59</td>
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5.1 Design

Courses do not just emerge in the curriculum from nothing. They rather reflect the required skills a graduate needs to act in his or her professional
role after graduation. In engineering courses are partially dictated by the IEE so that there is a formal requirement for design. On the other hand the design of a course is driven by the needs of the department itself, for example if the students lacking mathematical skills (see, for example Fig. 56).

Consequently a design process starts with basic questions, for example: which skills the student has to learn? What are the intended learning outcomes? What are the aims? Which underlying teaching paradigm is suitable for that course? For me it is important that the students learn actual skills which enable them independently and that the course integrates into the other courses and that it finally provides important skills for their professional roles outside of the university (which relates the employability issues).

My design process is based on constructivist theory which demands that the students get actively involved in the learning process. For me such active involvement takes place in labs, tutorials, competitions, mock exams and team projects. Skills are therefore no passive recall of information but the active use of the information.

5.1.1 Psychology of perception

This course is for students who study a bachelor in multimedia. Perception for these students is important background information to understand properly audio and video processing because these techniques use the properties of early and visual and auditory processing in the brain (for example MP3 and JPEG).

As a basis of the course I took Barbara Webb’s lecture notes from the department of psychology from the University of Stirling where I worked before. Barbara handed me over a CD with all powerpoint slides and additional material which she explained to me in great detail. However, this lecture could not be used in the original form for students in engineering because the learning outcomes in engineering and psychology are different. While in psychology the learning outcomes are, for example, a proper understanding of mental illnesses, in engineering the focus is different. Here the learning outcomes are more technologically oriented which are in terms of signal processing (Fig. 2).

“Basic anatomy and physiology of the senses - seeing, hearing.
Appreciation of how information from the senses is handled by the brain - signal processing.”

My constructivist paradigm also demands interactive learning situations where the students are actively involved. In this case I designed lab sessions which mimic a neurophysiological lab. For that purpose I bought so called
“neurophysiologist’s” friend chips which basically behave like a real eye or an animal brain and generate realistic neurophysiological signals. Together with Matthias Hennig at the Dept of Psychology I developed software (see Fig. 3) which is similar to software used in neurophysiological labs. The actual results directly explain a couple of illusions and how they can be used for image compression. Together with a student from the audio lab I also developed a similar program for auditory processing to gain a better understanding of MP3.

I have taught the course now two times and I’m now thinking about how to integrate more interactive and individual work into the course. So far there have been three lab sessions which had a rather rigid timescale and tasks which had to be finished within the day. To use resources more efficiently and also to give the students more responsibility for their learning I could give up the rigid lab scheduling and give them a problem to work on at the start of term. This could be the above mentioned retina chip but also, for example, the measurement of ambient noise. The results could be presented in a small “conference” at the end of term.

5.1.2 Autonomous behaviour in man and machine

In Stirling I have designed an elective for the final year students. In this elective I experimented how to get psychology students interested in computational issues and autonomous robotics. I designed the first elective as a typical German humanities seminar: the students had to give presentations and then we discussed the issues (see Fig. 4). The novelty in this course was that the students had to set up web pages instead of essays which then were made public. By using web pages I wanted to encourage the students to produce high quality essays because they would be available on the Internet. In addition the students learned the transferable skill of web page design.

In the second year I continued with the web authoring but I switched to WiKi instead of plain HTML (see Fig. 5). The WiKi has the advantage that students can undo changes and I can see how much work the student has put into the WiKi. In addition I changed the presentation style in the seminar: instead of one presentation for each student I introduced mini presentations for every student for every session. This made sure that every student was prepared for every seminar.

The elective has given me the opportunity to experiment with different seminar formats in the humanities. As a conclusion I would say that at WiKi is a very good medium for essay writing and that the mini presentations kept the seminar going. If I had to do a humanities seminar again I would do it in that style, probably here in Glasgow with moodle.
5.1.3 Acoustics and audio technology

I have been in charge of one half of the course “acoustics and audio technology”. When I started lecturing that course it was the first time that it ran in the semester system which effectively lead to a shorter teaching period. This had consequences for the assignment of the course and also for its content.

The assignment in the years before was a “sound survey” where the students had to measure sound intensities at different places. The other assignment was a task where the students had to measure the frequency response of a loudspeaker. We realised that this could not be achieved in the short period of teaching. On the other hand the link to practical work is essential for effective learning. For that reason we decided to merge the two assignments into one and to define a problem where the students could work during the whole semester. The task in 2004 was to design an enclosure for a subwoofer supplied by Celestion (see Fig. 6). The 3 best assignments were then sent down to Celestion and the students were given the opportunity to talk to the designers at Celestion (with the prospect to get a job there). However, the assignment did not involve teamwork so far and also the actual task was too theoretical. In 2005 I changed the assignment to a group task where the students had to improve together their loudspeakers of their home stereo. Every student of the group had a specific task to do to achieve the goal of the group. To reach the individual goals they had to interact with technicians at the electronics workshop and mechanical workshop (see Fig. 7). This assignment guarantees now active involvement, responsibility, feedback, teamwork and dialog so that it complies mostly with a constructivist paradigm.

However, every assignment can be improved. This year I’ll define the criteria for assessment more specific. In the last assignment sheet I only encouraged the students to interact with the technicians but I did not assess it. This year I’ll add specific criteria, for example, the quality of the technical drawings which will encourage them “a bit” more to interact with the technicians.

5.1.4 Adult education courses

I have taught adult evening courses in Germany for nearly ten years in the area of computing. In contrast to university teaching there is not a strict course syllabus. The purpose of adult education is usually a mix of practical-skill-learning and socialising.

I’ll describe here briefly two courses. The one course was called in perfect German\textsuperscript{2} “PC-tuning” and means exactly that: how to improve the perfor-

\textsuperscript{2}The Germans are obsessed with English expressions, so was me.
mance of a PC (see Fig. 8). I designed this course as “a hands on” experience where I brought along buckets of computer hardware and computers which we opened, modified and reassembled again. The course took place on two days (Saturday from 2pm-6pm, Sunday from 9.30am-1pm). The course used lectures and practical exercises which were driven by the content (motherboard, graphics card, etc). The lectures were never longer than 30mins after which we did practical exercises. I also encouraged to bring along own computers so that the participants could upgrade their own PCs on the spot.

The second course was called PC management (see Fig. 9). The design of this course was an experiment. The task of the participants was to restore the PCs in the class room so that next term they could be used properly again. I personally had no exact knowledge what went wrong with the individual PCs. So, the design was that I prepared material for the different disasters which happen when a PC has been (ab-)used for a while. I also asked the participants to present the results on the blackboard. This was an interesting experiment where the course content was completely problem driven and it developed by itself.

5.2 Implement

I’m going to describe here four different courses which I have been teaching during the last 2 years.

5.2.1 Psychology of perception

I had to implement this course from scratch because the predecessor didn’t want to give me with his lecture notes and was in general not supportive. Also the labs had to be implemented from scratch. Also, unusual for a new lecturer, I had do design the course completely by myself because I am the only person with background in Psychology at the department.

As previously mentioned, I had the power point slide made by Barbara Webb which had to modified so that they address an engineering audience. Fig. 10 shows an example from the introduction. While psychology focusses here on social- and language issues I gave the students more a technical context (image compression).

Some other parts of the lecture were more of abstract nature where I decided to use the white-board which gave me the opportunity to develop the concepts step by step and adjust to the audience quicker (see Fig. 11). I think in general that abstract concepts can be better developed on the white-board because these cannot be properly animated in slide presentations. On the other hand slides are useful when more graphical information is needed,
for example in stereo vision where I used the projector to project 3D images which the students viewed with red/green glasses.

The lab sessions have taken place in the control lab of our department where I have set up computers with my software so that groups of 3 students could work together (see Fig. 12). I leave the student a great deal of freedom how to organise the task and in which order they want to do them.

I have been using moodle in this course only sporadically to upload additional material and also to encourage them to search the web, for example, for good links to the Hodgkin Huxley model. However, the response was nil. A reason might have been that no assessment has been associated with that task. Another reason might have been that because of the small class size (6-9 students) they have known each other personally and used their private e-mails instead.

5.2.2 Acoustics and audio technology

As previously mentioned acoustics and audio technology is a course which is based on lectures, assignments and tutorials. I’ll focus here on the tutorials which I have tried to vary to see which variant supports better learning. The traditional approach uses tutorial sheets which are given out once a week and then one week later the corresponding solutions. This approach assumes that the students are highly motivated and see the benefit of solving these tutorials. The reality is that most of the tutorial sheets stay untouched until 3 days before the actual exam. To solve this dilemma I decided to ask one tutorial question every lecture and to ask the students to solve the tutorial for the next lecture. I told them that the only way to get a solution is to solve the question and to either post it on moodle or to present it in the lecture (see Fig. 13 for a question). Nobody posted solutions on moodle but solutions were presented complete or as fragments in the lecture (see Debra’s observation, section 6.1). However, looking at the statistics on moodle it turned out that only about 5 students downloaded the tutorial questions.

I decided to change the strategy and set up a mock exam at the end of term (see Fig. 14). I told the students that they have to solve the exam questions during the exam and that they have to present the solutions at the white-board. This worked out very well: I helped the students individually and sent them to the front when they have found a correct solution. The main difference between these two scenarios is the motivational part. For the mock exam the students only have to motivate themselves once while in case of continuous tutorial questions the students have to be motivated during the whole course. This shows that the so called continuous or formative assessment need not to be the best alternative. In particular such a difficult
subject as acoustics and audio technology needs a deep understanding of the material which might exist only to the end of the course. In conclusion I think that a mock exam or two is the best for of getting feedback for both the students and me.

5.2.3 Digital Signal Processing

This course is part of the master in science. I have taught the course two times together with Marion Hersh. This course has a strong emphasis on lab-work. Every week after the lecture there are labs which are open ended.

Digital signal processing is a difficult subject which involves complicated mathematical derivations. In addition, most of the students are from abroad and have difficulties to understand spoken English. In the first year of my teaching I used a web site where I uploaded summaries of the mathematical derivations. Last year I used moodle for this purpose (see Fig. 15).

The lab sessions are centred around three assignments which cover different problems in signal processing. While Marion is covering audio processing, I am covering medical signal processing and signal detection. In my part the students have to record ECGs from each other and then remove all noise from the recordings. In another assignment the students have to decode the sounds from a touch tone telephone to find out which number I have dialled.

For the smooth running of the labs two lab assistants help me supporting students. Before the actual start of the term we did a dry run of the lab to make sure that everything worked properly. I expect a similar level of expertise from the lab demonstrators as from me so that we can help the students as a team of three. Alice, who observed me in this small group process (see section 6.2) remarked that I could have asserted my authority a bit more because one of the lab demonstrators had become a bit too bossy. This is always a problem which arises when you give responsibility and power to other people but as long as the students don’t suffer I think that’s OK. However, it is an interesting aspect how the relation between lab demonstrator and lecturer should be. For my part I think that the lab demonstrators should be treated as equal partners during the lab session and not just as technicians.

To establish an even stronger link to signal processing in the industry I invited Prof MacFarlane to our department to show how professional ECGs work and he recorded a proper ECG from one of the students (see Fig. 16).

The students have a couple of weeks to complete their assignments. I mark the assignments then and give them a chance to have a look at them to read my comments (see Figs. 27,26 and 25) and also to make a complaint if I have understood something wrong. In general this practise worked very well and many came to my office to discuss issues.
5.2.4 Team design project

As the name suggests it is about teams of 6 students who have to design robots from scratch to perform a specific task at the end of term assessment. To reach this final goal the teams have to plan well ahead (half a year) and manage their projects effectively.

This year I introduced moodle into the whole course (see Fig. 18) which has been used by virtually all groups to coordinate and document their work. Besides the normal forums I also added a WiKi to moodle which could be used as a virtual lab book (see Fig. 17) instead of a classic lab book. Both, the WiKi and the discussion forums have been used by all team design groups. I have got the impression that moodle is highly suitable for team projects where there is a need for a common platform which allows discussions and documentations.

Looking back to the two team design projects I have supervised, I must say that it heavily depends on the actual team. Last year the team disintegrated very quickly so that at the end only two of the 5 students worked on the project. The reasons why they left had nothing to do with the actual project but put too much load on the remaining students so that they were not able to finish the project in time. However, this year I had a highly motivated team which was virtually always in the lab. However, even the team with all their frustrations not finishing up the project gave a very positive feedback (see Fig. 19) because they had learned new skills like proper soldering and programming.

The team design project could be classified as project based learning in its purest form. It is an ideal learning environment but has its limitations. For example, when a student is not able to read circuit diagrams properly or is not able to write software at all the project calls for a disaster. The third year is certainly the best year to have a long running team design project which demands knowledge from many different areas of electronics and electrical engineering.

5.3 Learning support

For me learning support to a large extent is equivalent of giving feedback during a course or during supervision which could come from myself or from other students. Having my philosophy based on constructivism demands that there is feedback and not just linear information transmission which is rather an illusion than a working condition.
5.3.1 Acoustics and audio technology

Acoustics and audio technology is a highly theoretical subject which is not easy to digest. A real understanding is only possible if the students engage in the material and work on the problems. I set up a moodle page and encouraged the students to use that page to discuss mathematical problems (see Fig. 20) which has been used in particular for the exam in January.

In addition to the moodle forum I also set up a face to face question and answer session (Fig. 21) for the assignment to preempt bad designs and to bring the students together so that they can discuss issues together. I really like Q&A sessions because they are real-time and issues can really discussed which makes it usually more interesting. Q&A sessions also provide me with feedback because I see which parts of my lecture has to be changed.

As mentioned before, I have also set up a mock exam for the class (see Fig. 14). Actually, I see it rather as a tutorial where the students have to solve problems and I help them with it by going from student to student and giving him/her individual support. Once a student had found a proper solution he/she had to present it at the white-board to the other students. I did deliberately not give them any solutions so that they were motivated to work on them during the meeting and to present them. This gave them also the transferable skill of presenting work in front of their peers.

5.3.2 PhD and final year project supervision

PhD and final year project supervision is a much more involved process because it is one to one and most of the time face to face. My personal aim is to be available when the student needs me and not to delay this unnecessary. I usually make appointments with the students for the next day or the day thereafter (see Fig. 22). Otherwise the project might be delayed or the student heads into the wrong direction. The appointment system is more flexible than a strict meeting schedule (e.g. once every week) so that in case of difficulties more meetings can be scheduled. In contrast to the “open door policy” an appointment system gives security on both sides and the meeting can be planned properly (MacKenzie, 2004, p.9).

The feedback itself could be oral and also written. I aim to give feedback in both forms so that at the end of the meeting the student can take the notes with him/her. I regard written feedback as very important because the student can take it with him/her and work on it in more detail. When students write their final year theses I request a draft so that I can write in comments (see Fig 23) or send them an e-mail with comments back. The feedback I give to my PhD students is similar but there the open discussion
of ideas on a sheet of paper is most common form of feedback (see Fig. 24).

5.4 Assessment

Assessment is an integral part of every course which “estimates student learning for whatever purpose” (MacCulloch, 2006). Roughly, there are two different forms of assessment: on the one hand we have got formative assessment which purpose is mainly to provide constructive feedback to the student (Nicol and Macfarlane-Dick, 2006). On the other hand we have got summative feedback which measures the achievement of a student (usually at the end of term). In control theoretical terms the assessment is in place to indicate if a goal or learning outcome has been reached or not.

The assessment can happen between the students themselves (group assignments, lab work) or by me (exams, orals, assignments). Just now I am using assignments and exams where I think that a mix both is the best solution. I’m using group assignments so that the students learn to assess themselves in the group. However, using assignments for assessments has the inherent danger that the students plagiarise material from other groups or from the Internet. For me the solution is to combine assignments with exams where cheating is much more difficult than with assignments. Thus, both forms of assessment are important to for me: the assignment as a powerful form of formative feedback and the exam as a way of gauge the performance of an individual student with a low risk of cheating.

In this section I’ll divide into different forms of assessment rather divide between different courses which gives me the opportunity to reflect about assessment at the end of section.

5.4.1 Assignments

Acoustics and audio technology has two different forms of assessment: an assignment and an exam at the end term. The assignment had to be handed in at the end of December which means that the students could work the whole term on it. I marked the assignment during the Christmas break and gave the students a chance to have a look at my comments (see Fig. 25 for acoustics and Figs. 27, 26 digital signal processing). I placed the assignments in a box in the lab to which the students had access. The only risk is that students take the assignment then home which gets me into trouble if the externals want to see them. In future I have to make sure that the box with the assignment is at a safer place.
5.4.2 Exams

Marking exams seems to be a straightforward process. However, it has to be marked in a way that both my colleagues and the external examiners can actually read my comments in the exam scripts when they check my marks. For that reason I try to write clearly from the first to the last exam script (see Figs 28,29 and Figs 30,30) which seems to be trivial but it makes life for the people who are cross checking the exam much easier.

5.5 Evaluation

Evaluation is an important part of the teaching cycle. By getting feedback from students and peers I can improve the design and implementation of my courses (see Fig. 32 for a general account of my evaluation practise). Our department demands at least one evaluation per course.

5.5.1 Formal feedback from students

For the bachelor in engineering the department uses standard questionnaires which are handed out at the end of the lecturing period see Fig. 33). These questionnaires give me an overall feedback of my teaching, however, not very specific.

The other disadvantage of our standard questionnaire is that it is not tailored for the specific course. For example, the standard questionnaire (Fig. 33) does not differentiate between lectures and labs. For that reason I have designed for digital signal processing my own one (Fig. 34) based on the questionnaire developed by Thornhill (2006). In particular I wanted to find out if the labs have been successful or not because there had been some friction between the lab demonstrators and me because one of the lab demonstrators was talking behind my back. My main concern was not the lab demonstrator at that point (who I asked to come to my office after the lab session) but if teaching had been affected. To my satisfaction this was not the case. All students gave very good ratings and didn’t mention anything about that inappropriate behaviour.

5.5.2 Informal feedback from students

I think that informal feedback is very valuable and is usually also constructive. For example, one of my PhD students was worrying that he wouldn’t be able to produce a high quality PhD which I took very seriously and make an appointment straight away (see Fig 35).
Most of the individual feedback comes from project students who have finished successfully a project which is often for them a very emotional moment. Feedback in that context has been overall positive so far because my team design projects (see Fig 19) and individual projects (see Fig 36).

5.5.3 Peer feedback

In our department exam scripts are peer reviewed. In the first instance my drafts are sent out to a colleague who reads the initial exam script (see Fig. 38). For me this feedback has been invaluable in particular in psychology of perception (see Fig 37 and Fig 39) which was a course I had to design, implement and assess on my own. Once the internal examiner is satisfied with the corrected exam paper (see Fig. 40) it is sent out to an external examiner who again gives feedback about the paper.

On the other hand feedback from the external examiners might be just wrong which has been in this case (see Fig. 41). External examiners are seen by some people as “god-like” persons who cannot be criticised. However, also external examiners make mistakes. The lesson I learned from that was that in order to arrive at a perfect exam I have to be critical against any input I get from my peers.

5.6 Reflective account of scholarly activity

5.6.1 Information transmission vs feedback learning or: lecturing vs lab work

As outlined in my teaching philosophy, lecturing corresponds to a linear model of information transmission (Shannon and Weaver, 1949) whereas project work is more the constructivist approach where students continuously assess their own learning (Sadler, 1989; Nicol and Macfarlane-Dick, 2006).

I think that project work is essential for successful teaching and that it has to be part of any curriculum because it provides continuous feedback during the course. That lab- or project-work can make a difference can be seen when I compare acoustics and audio technology with digital signal processing. In acoustics and audio technology “only” an assignment in form of project work provides feedback. However, this feedback is limited to the assignment itself. As mentioned before, the lecture had different forms of feedback integrated (tutorial questions and mock exams) but they were not on a continuous basis for reasons mentioned above. On the other hand, digital signal processing has a combination of two hours lecture and 3 hours lab where the students had to solve assignments (similar to the adult education courses). In such a
setup the students had to directly apply their knowledge after the lecture. I personally think that this is the best configuration for teaching when the theoretical material had to applied right after the lecture. To see if there are any differences I have done two mid term surveys in both digital signal processing and in acoustics and audio technology. The results are shown in Fig. 42. In general the ratings for digital signal processing were much better than the ones for acoustics and audio technology. In particular the dimensions “interactivity” and “peer support” where much better in digital signal processing which indicates that the labs play an important role to get students talking to their peers but also to the lecturers and tutors.

These empirical results support my view that forms of teaching which incorporate feedback improve learning. In acoustics and audio technology more mock exam style tutorials could increase the interactivity between students and also between them and me. The same is true for psychology of perception which just now only has three afternoons with labs.

Reflection about scholarly activity could be also done by thinking back to my own time at school Cottrell (2001). I’m in the lucky position that I’m also student in different adult education courses just now. In these courses I see how good and bad teaching affects me as a student (see Fig. 43). The interesting point about that course is that it points out that group work and peer assessment can be easily abused. It is very tempting as a lecturer to use small group work to reduce the amount of work to a minimum but, at the same time, keeping the students busy. In this case the tasks we had to undertake had only in a very general sense something to do with the course content.

This example shows that small group processes are not per se better than lecturing. They are only good when they have been properly prepared so that the tasks have something to do with the learning outcomes. From my point of view as a lecturer it is very tempting to dream up senseless time consuming tasks which keep the students busy for a long time so that I can go back to my research and won’t be bothered any more.

5.6.2 Teaching, research and employability

My sociological paradigm is the social system theory by Niklas Luhmann (Luhmann, 1995) which combines social constructivism, radical constructivism and cybernetics. He states that every social system forms subsystems which only operate self referentially and treat everything outside as environment. Interestingly, for Luhmann education is when the educational subsystem integrates students into their own system. This refers to an ideal condition where there are no boundaries between students and teachers once
they are part of the university (Gunn, 2004, p.3). In reality there is also a social system formed by the students which in the worst case treats the academic system as its environment.

A recent conversation with a student illustrates the problem where he was wondering what I’m going to do during my 3 months of holiday during the summer. I explained that as an academic I had to do research and that I was going to write papers during the summer. The student then was quite amazed that these paper are refereed and that scientific work is a bit more than just having some fun with robots or rats. But I don’t blame him for this mis-perception because we usually don’t integrate students into our research.

A way out of the dilemma is to integrate the students more in research. For that reason I always advertise final year projects which contribute to my research (see Fig. 44). If successful, these projects are highly beneficial to my research and they introduce the students into to the system “academics” (Vygotsky, 1986). In particular this year I have integrated two students into my current work. Together with a project student I have submitted a paper to the NIPS conference (see Fig. 45) which is the result of her final year thesis. The outcome of another project is a data acquisition device which we are planning to commercialise with a company in Stirling (see Fig. 46). With such projects the students are highly motivated, learn cutting edge skills and I also directly benefit from their work. Because I am interested in their work they are motivated to produce results. So, it is a process which is beneficial for both parties.

Consequently, my goal is to integrate my students more into my research. Where this is not directly possible I can ask colleagues who are working in that field to suggest interesting research questions.

5.7 Keeping records

I have got two forms of keeping records. The one is a classical filing cabinet and the other one is my e-mail system. Important documents are always kept in electronic form and in paper form to have a form of redundancy.

5.7.1 Classical filing of records

While most of my records are stored in electronic form some of the material is kept in a classical filing cabinet where every course has a folder where I keep material. I usually keep handwritten notes in the filing cabinet, for example, the original student feedback with their handwritten notes in my filing cabinet and other handwritten material, for example notes how I distributed marks on assignment sheets (see Fig 47) or notes from a telephone
conversation about companies in the sound business (see Fig 48). I like handwritten notes because they can be produced much quicker than a typed text.

5.7.2 Electronic form

The electronic storage is done in form of e-mail sub-folders (see Fig. 49). The advantage of storing everything as e-mails is that is has automatically a date and I can add a subject line. The other advantage is that I can access my e-mail from any place in the world which is important when I am away on conferences or research visits. This happened, for example when I rebutted the comment of the external referee while being in Germany (see Fig. 41).

5.8 Management of resources

The work as a lecturer involves a variety of different tasks which have to be managed all the time. Only with an efficient management system I am able to achieve my goals and meet my deadlines. This might sound trivial but in particular during term time I have to manage research and teaching efficiently.

I have got two different systems in place which help me to manage my time and my resources. The one is a simple diary and the other one are to-do lists. While the diary is important to make appointments and to meet deadlines the to-do list is important to prioritise work. In other words: while the diary is driven by time the to-do list is driven by achievements. This is an important difference. For example, research has its deadlines, for example for conferences. However, new ideas cannot developed towards deadlines. I only can prioritise my tasks and spend more time on developing new ideas what I have done in spring to solve a difficult mathematical problem.

There is an interesting example of project management in the open source community: while Netscape had been managed deadline driven, the new Firefox has been developed recently by quality control (to-do lists) and no deadlines. This meant that releases are not deadline driven but driven by the remaining bugs in the program. This has increased the stability and quality of the browser quite a lot.

5.8.1 Diary

The diary is for tasks which have a deadline or specific dates. For example, when I get an e-mail of an important conference I instantly add this deadline to my diary (see Fig 50). The same applies to appointments with students.
When they ask me for an appointment I suggest a time and write it down immediately (see Fig 51).

5.8.2 To-do lists

The to-do lists are important to prioritise tasks which have no specific deadlines but where a certain level of quality has to be reached. For example, ongoing work in research (Fig. 52 and Fig. 53) is usually quality driven where a paper can only be submitted when my peer judge it as bug free.

5.9 Professional development

My goals are in the three different areas of my academic life: research, teaching and administration.

5.9.1 Research

My goal has always been and will be interdisciplinarity. In particular, this means that I will extend my cooperations with other disciplines. Just now I am working with researchers in the field of drug abuse where my personal goal is to submit a paper to Nature or Science by the end of the year (see Fig. 54) which explains why cannabis impairs reversal learning.

My second goal is to provide good supervision for my 3 PhD students so that they get their PhD in time and produce cutting edge research. This is in particular merging reinforcement learning with classical conditioning, performing brain stimulation in the limbic system and to develop a digital microphone so far that we can start a cooperation with a company.

My other work has been in the area of robotics which resulted in “Run-Bot” which has outperformed a walking robot at the MIT. My personal goal here is to find a cooperation partner which will try to use these ideas for spinal injury patients (see Fig. 55) and to write a proposal for the FP7 of the EU with international partners. Another goal here is to write a public awareness grant together with a colleague which promotes the understanding of walking at schools and other universities.

5.9.2 Teaching

In the area of teaching my goal is to improve the abstract skills of my students, in particular mathematics and reading of circuit diagrams. The main reason why students do not complete their engineering degree is because of frustration in mathematics and circuit design. For that reason I have joined
a departmental group which discusses measures how to improve the basic abstract skills of our students (see Fig. 56).

Another aspect I find important is employability. For that reason I attended recently lunchtime seminars to learn more about this important aspect of academic responsibilities and I established contacts to different industrial partners, for example Celestion (see Fig. 6). I also facilitated contacts between students and companies in Germany for their 5th year placement (Delphi and Bosch). This is ongoing work and my goal here is to establish more contacts in the future with different companies. One of my PhD students is just now sponsored by Wolfson Microelectronics and my aim is to develop the contacts with that company.

5.9.3 Administration

Recently, I have organised an engineering information day for school children from private schools (see Fig. 57). The idea was to get more school children into engineering because the numbers are in decline. This was an interesting experience and my goal is to get more involved in this kind of work. I enquired already about the ambassador scheme which aims to get more school children interested in engineering.

I’m also maintaining the Linux machines in the control lab for project students and for the labs in psychology of perception. This involves a close cooperation with the IT support people at our department (see Fig. 58).
6 Observations

6.1 Lecture observed by Debra Macfarlane-Dick (NLTP tutor)

Bernd Porr – 5/10/05 – 4th Tutorial Question Lecture

Bernd,

Thanks for letting me attend. I enjoyed the lecture and have remembered some school maths! I have just listed some observations below following your lecture that you may want to consider. I hope these may be useful to you. Feel free to use or discard as you see fit and forgive me any ‘arts student’ type faux pas that I may make in making suggestions that may not suit your discipline!

The lecture revolved around the solution to the question posted on Moodle that the students were able to see in advance. I noted that attendance at the lecture was good but that participation in Moodle was almost totally non-existent on the forums and postings and I wondered whether Moodle was not being used as the students had no incentive to try to solve the problem themselves, as you would do it for them in the lecture? You could perhaps seek some feedback from or do an evaluation with the students as to why they are not using Moodle. GUIDE may be able to help you think of other ways to integrate the lectures with the technology as they have pedagogical experts with experience in this. They might also be able to help you think about how to ‘sell’ Moodle at the start of the semester.

How much do you set out at the start of the semester what your expectations are as regards Moodle and/or preparing solutions to the question posed between lectures. Is this something you sell as compulsory or optional?

Also, could you try posting different problem/solutions on Moodle that are related to, but not identical, to those that you cover in the lecture? This would give you the freedom in the lecture to review rather than solve and go into the subject in more depth.

The students who spoke in the lecture seemed very engaged and answered questions when prompted but there were few of them – it was hard to tell whether the others had actually done any work and this may not become visible until the summative assessment stage, which could be too late for you to do anything about it. There was a lot of writing down going on by the students which made me wonder whether many of them had even attempted to think about the question in advance – they weren’t checking or correcting what they had in their books – just copying down.

Another idea might be to change to some kind of tutorial system or a mix between tutorials and lectures given the students are senior honours. It would seem useful to get the students to do the solutions themselves (this seems like the biggest problem as for those that don’t engage you do it for them and all they need to do is copy it down which seems perhaps too easy for 4th yr students). Could you get them to do this in pairs or weight some assessment credit on the production of solutions? If this were to work you could then use the lecture time to explore with them what the tricky bits of the solutions were/where the issues could arise and what traps etc they could fall in to are. This would be a form of formative assessment and an opportunity to engage more fully in feedback. Or, could you explain the first solution and get the students, perhaps in pairs (you could allocate e.g. 2 pairs per week) to ensure all students need to take a turn) to present the solution using the other functions able to solve it?

These were my main observations and I’m happy to discuss them (before the end of Thursday) if you’d like to.
6.2 Lecture and small group processes observed by Alice Miller (NLTP peer)

On Monday 22nd November, 2004, I attended a 2 hour session run by Bernd Porr as part of his Master’s course in Digital Signal Processing. The session took the form of a lecture followed by a lab session. Both of the sessions had small group characteristics.

6.2.1 Lecture

Lecture This was the 2nd hour of a two hour lecture slot. It was the final lecture of a series of five lectures. I arrived just as the students were having a 10 minute break.

One thing that Bernd did not do at the beginning of the lecture was to introduce the observer to the class (me!) As a result there was a great deal of furtive looks over shoulders during the lecture to see who I was.

The first 40 minutes of the lecture was run entirely via chalk and board. However, this did not entail laborious note writing; instead it consisted of a sequence of explanatory diagrams, with the lecturer talking around the problem that each diagram represented. This lent a nice light touch to a very technical subject. The students appeared to be fairly engaged throughout. Enough time seemed to be spent on each example to clarify the major points, but there was no attempt made to be overly mathematically thorough. Some of the students were making copious notes, but others virtually none. I suspect the examples were clarifying work that was covered in the previous lecture. In addition, outline notes were available via the course webpage.

Not many questions were asked by the lecturer of the students. When one question was asked, the lecturer missed the answer being shouted from the back and continued to wait in silence for an answer. The wait paid off, as eventually someone else answered the question. Instead of simply asking the students in general if they understood, perhaps the lecturer could have asked an individual student to explain, or to ask them to discuss the material in groups. The students were clearly very interested in the material and eager to discuss it amongst themselves. There was a continual murmur in the lecture theatre which was rather off-putting. However, this was due to pairs of students discussing the points raised by the lecturer. This seems like an ideal situation to exploit for small group purposes.

As mentioned above, due to the nature of the subject, the lecture contained some fairly technical material. But the lecturer managed to keep the students interested via the use of diagrams and every day examples. For example, to illustrate one concept an ECG signal was used, and for another,
the frequency of radio 2 was used. In both cases the lecturer used a joke to introduce the example (in the first he referred to the use of ECG output in television soaps, and in the second he inferred that he was probably the only person in the room to listen to radio 2). In both cases the combination of humour and an example to which they could relate visibly relaxed the students and caused them to "refocus" on the lecture.

After 40 minutes a presentation was given by one of the students. The presentation involved the demonstration of a computer program to filter an ECG signal produced by taping probes to a fellow student. The electronic system used was fairly complicated but worked very impressively. The lecturer had obviously taken great care to ensure that the equipment had been set up properly beforehand. The student giving the presentation had volunteered for the task the previous week (when a volunteer was asked for by the lecturer). Some help had been given to the student by the lecturer in advance (sending the student a similar program to modify, for example). After the presentation, the lecturer thanked the student and gave encouraging feedback. The rest of the class seemed entertained by the presentation, but did not seem to be directly involved (apart from the student whose heartbeat was being monitored!)

The lecturer had a pleasant, easy manner. As Masters students, the audience was naturally more receptive than a class of undergraduates would have been. However, they seemed particularly respectful of Dr Porr and genuinely interested in the lecture. This is particularly impressive after two hours of lectures.

The lecture room was clearly not built for small group processes, but as a small theatre was fairly intimate. The door was open during the first part of the lecture, to allow air into the room. Otherwise it may have become oppressively stuffy. The overhead lighting buzzed continuously, which had rather a soporific effect.

Overall, I thought the lecturer performed very well and had given great thought to the layout of the lecture. He did very well keeping the students interested, especially after 2 lectures and the rather sleepy atmosphere in the room. If I were to give any suggestions for improvement they would be: Address the "murmur" issue, and maybe exploit it Ask more questions, and create discussion in the class

6.2.2 Lab

The students had previously been supplied with a sheet containing 2 assignment questions that were to be completed in 2 weeks. The instructions were self-explanatory and so the students each sat down at a workstation to start
the assignments. Some of them worked individually, but most worked in pairs or in groups of three.

There were two PhD students in the room working as lab demonstrators. One of the demonstrators came and introduced herself to me and appeared to describe how "her" lab session would work. I think there may be some tension between this demonstrator and the lecturer, who perhaps is too kind to assert his authority (especially while being observed!)

There was also a lab technician in the lab who helped the lecturer set up some equipment for a demonstration. The lecturer showed the students how the equipment (a touchtone telephone whose signals were output to the computer and onto a screen) worked. He then asked the students to come and try the equipment out, as it was relevant to one of the assignments.

Apart from this demonstration, the session consisted of the students working by themselves, with the lab demonstrators and the lecturer moving around the class asking questions of the students, and responding to queries. It was a relaxed atmosphere, although the students worked very diligently throughout and concentrated hard on the assignments.

The session seemed very conducive to learning. The small clusters of students that had formed began to work together to solve the questions on the sheet and there was a general murmur (acceptable in this context) throughout the room. The main role of the lecturer here was to guide the students towards a suitable solution. In addition though, it was very important that the assignment questions set were both well-structured and reflective of the material covered in the lecture. Both of these criteria seem to have been met.
# Evidence

## Course information

<table>
<thead>
<tr>
<th>PSYCHOLOGY OF PERCEPTION 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course code</strong></td>
</tr>
<tr>
<td><strong>GU Credits</strong></td>
</tr>
<tr>
<td><strong>ECTS Credits</strong></td>
</tr>
<tr>
<td><strong>When taught</strong></td>
</tr>
<tr>
<td><strong>Prerequisite course(s)</strong></td>
</tr>
<tr>
<td><strong>Teaching staff (the first has overall responsibility)</strong></td>
</tr>
<tr>
<td><strong>Approximate size of class</strong></td>
</tr>
<tr>
<td><strong>Semester</strong></td>
</tr>
</tbody>
</table>

### Description of course

#### 1. Visual and auditory perception

18 sessions and 6 tutorials

**Aims**

To introduce the main stages of visual processing from the retina to the visual cortex. To compare visual and auditory perception. To explore the issues of cognition and perceptual phenomena.

**Objectives**

- Understanding
  - The link between human physiology and cognition: how we interpret what we see and hear.
- Knowledge
  - Basic anatomy and physiology of the senses - seeing, hearing. Appreciation of how information from the senses is handled by the brain - signal processing.
- Skills
  - How to study the senses. Different stimuli appropriate for visual stimulation. Optical illusions. How to interpret auditory scene analysis.

**Syllabus**


#### 2. Laboratory

3 sessions of 3 hours

**Aims**

To study the senses and how the input from them is interpreted by the brain.

**Objectives**

- What can be learned from different input stimuli - separation of the effects of rotation and translation by using different patterns. Optical illusions. Appreciate the difficulties of carry out auditory tests.

**Syllabus**

3 experiments designed to complement and reinforce the lecture material.

---

Figure 2: C: Psychology of perception, S: BEng, L: 3rd year, W: B.Porr, H: Course info, LO: 5.1, UP: 3.4
Figure 3: C: Psychology of perception, S: BEng, L: 3rd year, W: B.Porr, H: Software to record from the artificial retina, LO: 5.1, UP: 3,6
UNIVERSITY OF STIRLING  DEPARTMENT OF PSYCHOLOGY

46HA: INTELLIGENCE IN PEOPLE AND MACHINES

SPRING 2003

Elective Co-ordinator: Bernd Porr & Florentin Wörgötter
Office: 3B143

Seminars: Monday 1500-1700 in CCCN Seminar Room
First Meeting: 17th February
Other Meetings: 24th February, 3rd, 10th, 17th, 24th & 31st March, 28th April and 5th May

Learning Outcomes:

Students will gain insight into a highly interdisciplinary field. Emphasis will be upon being able to distinguish the different viewpoints of psychologists, philosophers and engineers, who have all addressed the problem of intelligence from a different perspective.

Assessment:

Students are required to give an approx. 30 min presentation and to prepare an essay (as (a) WEB-page(s)) about the same subject (80%), due by 9am on 19 May 2003, 9am. Additionally, every student is required to give a mini-presentation (one or two slides) about the main-subject of each session (20%).

Essays:

Your essay will become a web-page. The web page should be based on your presentation and then it should be extended by the results of the discussion. You may ask Bernd Porr or Florentin Wörgötter if you are unsure about the contents or if you require technical help. Cross-link your page with pages from other participants and ask them to insert tags so that you can refer to specific topics. Therefore: exchange your e-mail addresses or put them simply on the page itself as a contact address.

Figure 4: C: Intelligence in people and machines (Spring 2003), S: BPsy, L: 4th year, W: B.Porr, H: Course info, LO: 5.1, UP: 3,5
Internals

Intelligence in People and Machine

- Upload an image
- "Radical constructivism in animals and animats": Slides
- Access statistics (external program):
  http://www.cn.stir.ac.uk/teaching/intelligence/webstat
- Essays: Your essay is a web-page. The web page should be based on one of the topics and then it should be extended by the results of the discussion. Cross-link your page with pages from other participants and ask them to insert tags that you can refer to specific topics (see the Wiki related stuff). Deadline: 25 November, 5pm. Moderator: Martin Doherty
- Learning Outcomes: Students will gain insight into a highly interdisciplinary field. Emphasize will be laid on being able to distinguish the different viewpoints of psychologists, philosophers and engineers, who have all addressed the problem of intelligence from a different perspective.
- Assessment: Students are required to give a mini presentation every session (1 minute, only one slide) and to prepare an essay (as a WEB-page(s)) about the same subject (80%).
- Attendance is compulsory at all seminars - absence will only be excused for good reason. No grade will be awarded to a student absent from more than one seminar.

back to the Home Page

Figure 5: C: Intelligence in people and machines (Autumn 2003), S: BPsy, L: 4th year, W: B.Porr, H: Course info, LO: 5.1
Re: Acoustics

Subject: Re: Acoustics
From: [redacted]@celestion.com
Date: Mon, 25 Oct 2004 13:17:37 +0000
To: B.Porr@elec.gla.ac.uk

Hi Berrd,

Please let me know if there are any specific requirements for the 12" drivers you require and let me have your contact details and I will arrange something for you.

Can I also draw your attention to the job vacancy we have at the moment?

Regards,

John

----- Forwarded by [redacted]@GUMMESTUK on 23/10/2004 15:13 -----

B.Porr

From: [redacted]@GUMMESTUK
To: Berrd Porr
Subject: Re: Acoustics (Document link):

Dear Berrd,

I have forwarded your mail to John, the Marketing Exec for Celestion. I feel sure that if it is possible John will do all he can to help.

Regards,

[redacted]

-----

Berrd Porr

To: [redacted]@celestion.com
Subject: Acoustics

[redacted]

Dear [redacted]

I'm just now lecturing acoustics at the University of Glasgow.

I would like to give the students the chance to design a real loudspeaker (cowhorn) enclosure during the acoustics lecture.

I'll do it as a competition: the students hand in designs for enclosures and then the best one will be built here in the workshop.

L.22 24/06/04 15:38

Figure 6: C: Acoustics and Audio technology, S: BEng, L: 4th year, W: B.Porr, H: E-mail to Celestion, LO: 5.1, UP: 3
Loudspeaker design assignment

The task is to improve the low frequency response of your own home stereo system by a subwoofer: a) Measure the frequency response of your stereo in the anechoic chamber. b) Design a suitable enclosure. c) Design a suitable crossover (active or passive) with appropriate connections to your home stereo. Form groups consisting of 3 persons where each person is responsible for a, b or c. In the final assignment it must be clearly indicated who has done which part. We’ve got two TRUVOX 1225 from Celestion:

<table>
<thead>
<tr>
<th>General specifications</th>
<th>Thiele-Small Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal diameter (**)</td>
<td>Mnt (g) 46.5</td>
</tr>
<tr>
<td>Power Rating (AES, W rms)</td>
<td>Qms 6.70</td>
</tr>
<tr>
<td>Nominal impedance (Ω)</td>
<td>Qes 0.54</td>
</tr>
<tr>
<td>Sensitivity (dB)</td>
<td>Qts 0.50</td>
</tr>
<tr>
<td>Chassis type Pressed steel</td>
<td>Re (Ω) 5.13</td>
</tr>
<tr>
<td>Voice coil diameter (*)</td>
<td>Vas (L) 55.0</td>
</tr>
<tr>
<td>Surround material Cloth-sealed</td>
<td>Magnet assembly flux</td>
</tr>
<tr>
<td>Magnet type Ceramic</td>
<td>Bl (Tm) 13.2</td>
</tr>
<tr>
<td>Magnet weight (oz)</td>
<td>Cms (mm/N) 0.2</td>
</tr>
<tr>
<td>Cone material Kevlar loaded paper</td>
<td>RMS (kg/s) 2.8</td>
</tr>
<tr>
<td>Frequency range (Hz)</td>
<td>Xmax (mm) 2.4</td>
</tr>
<tr>
<td>Resonance frequency, Fs (Hz)</td>
<td>f/p (mm) 8.0</td>
</tr>
<tr>
<td>Mounting Information</td>
<td>coil (mm) 12.7</td>
</tr>
<tr>
<td>Diameter (mm)</td>
<td>309</td>
</tr>
<tr>
<td>Overall depth (mm)</td>
<td>130</td>
</tr>
<tr>
<td>Cut out diameter (mm)</td>
<td>283</td>
</tr>
<tr>
<td>Mounting slot dimensions (mm)</td>
<td>7.9</td>
</tr>
<tr>
<td>Number of mounting slots</td>
<td>4</td>
</tr>
<tr>
<td>Mounting slot PCD (mm)</td>
<td>297</td>
</tr>
<tr>
<td>Unit weight (kg)</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Thus, the task is to present a solution that works: The enclosure(s) should be tailored to your home stereo system. Describe in detail how you connect the subwoofer to your home stereo. Anything is permitted. Be creative. Ask our technicians to help you with any technical aspect. Provide proper technical drawings and part-lists. We’ve got the subwoofers and also MDF sheets if you want to build an enclosure (optional).

Use the moodle forum of this lecture to exchange ideas!
http://moodle.qla.ac.uk/lena/moodle/
Enrolment key: bassreflex

This will be the only assignment in the lecture.
Deadline is 19 december 2005.

Figure 7: C: Acoustics and Audio technology, S: BEng, L: 4th year, W: B.Porr, H: Assignment, LO: 5.1, UP: 3
PC-tuning, Weekend seminar.
The seminar is for those who have been working with a PC and realise that some programs work slowly or not at all any more. Within one year computers become outdated which raises the question: a new one or upgrade? This seminar deals with the latter one which is cheap, individual and environmentally friendly. By replacing certain parts he/she can upgrade the computer so that it is up-to-date again. For such a measure no specific skills are needed, only the courage to operate a screwdriver. Existing inhibition thresholds will be overcome. The following subjects will be covered: from 386 (or 286) to 486 or Pentium processor; displays, non-flicker; connections; replacing hard drives; CD-drive; sound card. On request other subjects can be covered. Special knowledge about hard- and software is not required.
Figure 9: C: PC-Management, S: Adult classes, L: N/A, W: B.Porr, H: Course description, LO: 5.1, UP: 3
Translation: PC-Management, Not only the real desktop has to be tidied up but also the one on a PC. After a while "dead files" reside on the hard drive, fonts of no longer wanted software take up memory and icons live as ghosts on the hard drive. The goal of this course is to look behind the scenes of the colourful windows to make it efficient again. The exercises takes place on the PCs at the Hedwig-school which have just survived one year of teaching, therefore have been heavily loaded with different tasks and will have definitely some zombie files on their hard drives.
Figure 10: A) Original lecture by Barbara Webb from the University of Stirling. B) C: Psychology of Perception, S: BEng, L: 2nd year, W: B.Porr, H: Slide of the lecture, LO: 5.2
Recepet fields are tuned for certain frequencies:

- Low freq.
- High freq.

Fourier theorem:
An image can be completely described by sine and cosine waves.
Form groups of 3 or 4. Every group hands in one assignment. Every student works on a different section. The whole assignment will be based on the three lab sessions. The first lab will deal with the retina, the second one with the visual cortex and the third one will deal with the auditory system.

The first two assignments will use the “Physiologist’s friend” by Toby Dellbruck (see http://www.ini.unizh.ch/~tobi/friend/chip/index.html). It is a camera which simulates different cells in the retina and the visual cortex. In addition we will use a simple stimulus program which has been designed for vision experiments and a program which generates PSTHs.

1. Determine the shape of the receptive field. Start the program “./rfMapping”. Attach an acetate to the monitor and mark with a pen where the neuron is responding or where its activity is suppressed. Classify the receptive field. What is the optimal stimulus?

2. Record a PSTH from the retina while it is stimulated with a Mach band (“./movingMachBands”). Make sure that the period of the stimulus and the time of a measurement sweep are the same. Compare the intensity profile of the Mach band with the PSTH. Argue why the retina has improved the contrast. Save the PSTH on disk. You’ll need it for your assignment. You can plot it later with “gnuplot”.

3. Stimulate the retina with a Herman grid (“./flashingHermanGrid”). First, place the centre of the receptive field in a cross of white lines. Second, place the centre of the receptive field on a white line. Record a PSTH for both conditions. Give reasons why the firing rate for the cross is lower than the rate for the white line.

4. Stimulate the retina with a large flashing square (“./rfMapping”) so that the whole receptive field is covered. Record a PSTH. Why is there a transient response in the PSTH?

Figure 12: C: Psychology of Perception, S: BEng, L: 2nd year, W: B.Porr, H: Assignment, LO: 5.2, UP: 3
3rd Tutorial Question

Bernd Porr

3 Oct 2005

Show that the angular frequencies corresponding to the half power point of a driven oscillator are:

$$\omega_{1,2,3,4} = \frac{R_m}{2m} \pm \sqrt{\left(\frac{R_m}{2m}\right)^2 + \omega_0^2} \quad (1)$$

Use the same trick I used in the lecture. Remember that the power can be expressed as

$$\Pi(\omega) = F^2 \frac{R_m}{2Z_m(\omega)} \quad (2)$$

and that the maximum power of (Eq. 2) is at resonance ($Z_m = R_m$) when $\omega_m - \frac{\omega}{2} = 0$.

Figure 13: C: Acoustics and Audio technology, S: BEng, L: 4th year, W: B.Porr, H: Tutorial question, LO: 5.2, UP: 3
Acoustics tutorial

Bernie Porr
27 Oct 2005

1. Show that \( p = \cos(\pi \pm \kappa z) \) solves the wave equation:

\[
\frac{\partial^2 p(x,t)}{\partial x^2} = \frac{1}{v^2} \frac{\partial^2 p(x,t)}{\partial t^2}
\]

(1)

2. What is the impedance of a plane wave \( p = \log(x \pm y) \)? Use Newton's law:

\[
\frac{\partial p}{\partial z} = \rho \frac{\partial \psi}{\partial t}
\]

(2)

3. Fig. 1 shows two radiation patterns of the same loudspeaker. What has been measured and how is that plotted in the radiation pattern. Argue which frequencies have been used for the left and the right pattern. The loudspeaker has a diameter of approx. 10cm.

4. A continuous line source (e.g. a string of a violin) of length \( L \) and diameter \( d \) generates pressure at \( r, \theta \):

\[
p(r, \theta, t) = \frac{i}{v} \rho c \bar{A} L \left( \frac{\sin k r}{kr} \right) \sum_{n=0}^{-\infty} \left( \begin{array}{c}
\frac{\sin \left( n \leq \frac{\pi}{2} \right)}{n}
\end{array} \right) \bar{A} \left( \begin{array}{c}
\frac{\sin \left( n \leq \frac{\pi}{2} \right)}{n}
\end{array} \right)
\]

(3)

where \( k \) is the wave number, \( \omega \) the frequency and \( U_0 \) the amplitude of the vibration. Identify the directionality term and sketch the radiation pattern for \( kL < 1 \) and for \( kL > 1 \) of the acoustic intensity in dependence of \( \theta \).

5. Why do we get a non-uniform radiation pattern if the wavelength is smaller than the size (radius, length, distance, ...) of the source. Argue with the amplitude and phase of the waves.

6. How is auditory information mapped onto the auditory cortex?

7. Give an example for Weber's law.

8. Why can't we locate low frequency sources?

9. Sketch the displacement of the basilar membrane for high and for low frequencies. Relate this pattern to the critical bands.

10. A loudspeaker cone has a mass of 15g. The loudspeaker is facing upwards. When an additional mass of 100g is put on top of the cone the cone sinks down by 2cm. When the cone is driven by a short pulse its amplitude decays to \( \frac{1}{4} \) of its initial value in 10ms. Compute the values for \( R_m \) and \( \omega_0 \). Does the membrane show damped oscillations or not?

11. To calculate the average power

\[
P = \frac{1}{T} \int_{T} \int f(t) |u(t)| dt
\]

(4)

the real part of the force \( f(t) \) and of the speed \( u(t) \) are taken. Why is it not possible to take imaginary functions for \( f(t) \) and \( u(t) \)? What would be the result?

12. Show that the angular frequencies corresponding to the half power point of a driven oscillator are:

\[
\omega_{1,3,5} = \frac{R_m}{m} \pm \sqrt{\left( \frac{R_m}{m} \right) + \omega_0^2}
\]

(5)

Use the same trick I used in the lecture. Remember that the power can be expressed as

\[
P(\omega) = \frac{1}{2} R_m \frac{R_m}{2\pi(\omega)}
\]

(6)

and that the maximum power of (Eq. 6) is at resonance \( (\omega_m - \omega_m) \) when \( \omega_m - \omega_m = 0 \).

---

Figure 14: C: Acoustics and Audio technology, S: BEng, L: 4th year, W: B.Porr, H: Mock exam, LO: 5.2, UP: 3.5
Figure 15: C: Digital signal processing, S: MEng, L: 1 year course, W: B.Porr, H: Moodle page which provides summaries of difficult derivations, LO: 5.2, UP: 3.4
Figure 16: C: Digital signal processing, S: MEng, L: 1 year course, W: B.Porr, H: Invitation of ECG specialist Macfarlane to the DSP lab to give a demo for my students, LO: 5.2, UP: 3.4
Figure 17: C: Team design project, S: BEng, L: 3rd year, W: B.Porr and my students, H: Set up the Wiki as a replacement of a lab book, LO: 5.2, UP: 3.4
Figure 18: C: Team design project, S: BEng, L: 3rd year, W: B.Porr and other lecturers, H: Used moodle to coordinate activities in the groups and the whole course, LO: 5.2, UP: 3.4
Hi Bernd,

Got the photos? Also, I didn’t get a chance to say thanks for all the help you gave us, and encouraging us to work! I don’t think we’d have got half as far if not, so thank you! Have a good weekend.

Send instant messages to your online friends http://uk.messenger.yahoo.com

Figure 19: C: Team design project, S: BEng, L: 3rd year, W: B.Porr and my students, H: Feedback from a student who attended the team design project, LO: 5.2, UP: 4.5
This forum is for general questions and answers. Don't be shy. Just ask and/or discuss issues from the lecture and the assignment.

1. **Discussion**
2. **Started by**
3. **Replies**
4. **Last post**

- **dB and dBm**
  - Started by: 0
  - Replied: 0
  - Last post: Mon, 9 Jan 2006, 01:33 AM

- **2004 Q6**
  - Started by: 0
  - Replied: 0
  - Last post: Sun, 8 Jan 2006, 02:15 PM

- **2005 Q7(q1)**
  - Started by: 0
  - Replied: 0
  - Last post: Sun, 8 Jan 2006, 01:57 PM

- **loudspeaker p/p questions**
  - Started by: 0
  - Replied: 0
  - Last post: Thu, 6 Jan 2006, 09:23 PM

- **2004 q1c**
  - Started by: 1
  - Replied: 1
  - Last post: Thu, 5 Jan 2006, 07:55 PM

- **microphone p/p questions**
  - Started by: 2
  - Replied: 2
  - Last post: Thu, 5 Jan 2006, 07:53 PM

- **Wave equations**
  - Started by: 1
  - Replied: 1
  - Last post: Thu, 5 Jan 2006, 07:53 PM

- **Boundary conditions**
  - Started by: 1
  - Replied: 1
  - Last post: Thu, 5 Jan 2006, 07:53 PM

- **Do op-amps require power?**
  - Started by: 1
  - Replied: 1
  - Last post: Thu, 5 Jan 2006, 07:53 PM

- **report**
  - Started by: 1
  - Replied: 1
  - Last post: Thu, 5 Jan 2006, 07:53 PM

- **Transfer Function of Crossovers**
  - Started by: 2
  - Replied: 2
  - Last post: Thu, 5 Jan 2006, 07:53 PM

- **WTF?**
  - Started by: 0
  - Replied: 0
  - Last post: Tue, 13 Dec 2005, 02:55 PM

- **Frequency response of speaker and woofer**
  - Started by: 0
  - Replied: 0
  - Last post: Sat, 10 Dec 2005, 02:18 PM

- **Filter design and crossover**
  - Started by: 0
  - Replied: 0
  - Last post: Sat, 10 Dec 2005, 02:18 PM

- **Resistance of speaker in passive crossover**
  - Started by: 3
  - Replied: 3
  - Last post: Sat, 10 Dec 2005, 02:18 PM

- **Crossover design**
  - Started by: 1
  - Replied: 1
  - Last post: Fri, 9 Dec 2005, 05:57 PM

- **Great Page for crossovers?**
  - Started by: 0
  - Replied: 0
  - Last post: Thu, 8 Dec 2005, 03:35 PM

---

Figure 20: C: Acoustics and Audio technology, S: BEng, L: 4th year, W: B.Porr, H: Moodle page to give the students a forum to interact, LO: 5.3, UP: 3,4,5
Figure 21: C: Acoustics and Audio technology, S: BEng, L: 4th year, W: B.Porr, H: Announcement of a question and answer session, LO: 5.3, UP: 3,4,5
Subject: Re: blackfin adc layout 2
From: Bernd Porr <B.Porr@elec.gla.ac.uk>
Date: Wed, 14 Dec 2005 10:04:12 +0000
To: [Redacted]

Hi!
At about 4pm. That's the only slot I've got.

/B

http://www.berndporr.co.uk/

Mobile: +44 (0)781 351 3651
Work: +44 (0)141 330 5237

Department of Electronics & Electrical Engineering
University of Glasgow
290 Oakfield Avenue, Glasgow, G12 8LT

-----

Note:
ok, we got 50% of the layout done but in having problems with separating the ground planes out.
Are you going to be free tomorrow at any point after lunch time to meet up and sort out the layout?

Cheers.

Figure 22: C: Individual project, S: BEng, L: 4th year, W: B.Porr, H: Making an appointment with a student, LO: 5.3, UP: 3.4
Figure 23: C: Individual project, S: BEng, L: 4th year, W: B.Porr, H: Providing feedback to the project student, LO: 5.3, UP: 3.4
Figure 24: C: Postgraduate degree, S: PhD, L: 2nd year of PhD, W: B.Porr, H: Illustrating new ideas during a discussion, LO: 5.3, UP: 3,4
Figure 25: C: Acoustics and Audio technology, S: BEng, L: 4th year, W: B.Porr, H: Marked assignment, LO: 5.4, UP: 3.4
Figure 26: C: Digital signal processing, S: MEng, L: 1 year course, W: B.Porr, H: Marked assignment, LO: 5.4, UP: 3.4
Figure 27: C: Digital signal processing, S: MEng, L: 1 year course, W: B.Porr, H: Marked assignment, LO: 5.4, UP: 3
\[ k = \frac{\omega}{c} = \frac{2\pi f}{c} \] in air

\[ k = \text{wave no. (rad/m)} \]

\[ \lambda = \frac{c}{f} = \frac{360}{34} = 10.59 \text{ m} \]

\[ \phi(x, t) + \frac{\partial \phi}{\partial x} = 0 \]

\[ \text{density } n \text{ constant} \ldots \]
Weber's law: $\frac{\Delta I}{I} = \frac{2}{1}$

Noise will be perceived louder if in a quiet surrounding or vice versa for loud noise.

- Fire alarm going off in a quiet library
- Exams in hall
- Someone sneezing

...will be perceived louder than actually is.

---

A single cortical cell can only output to one more cell. Where a complex cell can output to 2, depending on whether certain conditions are met.

With perception in a medium, light strengths or requiring the detailing of the data to small enough that there are no real visual clues to the depth.
To see this effect again, you can move your field of vision so that the star is slightly out of center. As you move on the star the eye moves; the darker areas are the retinas stimulated by darker areas and lighter areas the surround. Since the eye moves, the apparent direction of motion is toward the center.

The retinal areas within the visual field do not move; the apparent motion is caused by the movement of the eye. The visual effect is that of a moving target.
Figure 32: C: PG Eval1_0406 “my evaluation practise”, S: NLTP, L: 2nd year, W: B.Porr, H: Discussion on the TLS moodle about evaluation, LO: 5.5, UP: 6
Figure 33: C: Psychology of perception, S: BEng, L: 3rd year, W: B.Porr, H: Standard questionnaire which I handed out at the end of term, LO: 5.5
Figure 34: C: Digital signal processing, S: MEng, L: 1 year course, W: B.Porr, H: Custom designed questionnaire which differentiates between lab and lecture, LO: 5.5, UP: 1
Subject: Re: research
From: Benr Porr <B.Porr@elec.gla.ac.uk>
Date: Mon, 13 Mar 2006 15:09:38 +0000
To: [REDACTED]

Hi!

Should we meet at about 4.30pm or so? I've got a lab but they should be finished by 4pm.

/Ben

URLs:  
http://www.berndporr-re.uk/  
http://www.berndporr-b.de.uk/

Mobile: +44 (0)141 353 5237
Work: +44 (0)141 353 5237
University of Glasgow
Department of Electronics & Electrical Engineering
Room 515, Rankine Building, Oakfield Avenue, Glasgow, G12 8LT

---

Ben Porr <b.porr@elec.gla.ac.uk>
Dr
University of Glasgow
Department of Electronics & Electrical Engineering

---

Figure 35: C: Postgraduate degree, S: PhD, L: 2nd year of PhD, W: B.Porr, H: Meeting with a PhD student, LO: 5.5, UP: 5

Subject: Re: [Fwd: Re: ]
From: [REDACTED]
Date: Tue, 20 Jun 2006 00:47:23 +0100 (BST)
To: Benr Porr <B.Porr@elec.gla.ac.uk>

Hi Benr,

Thanks for the poster, I'll get the case back to you asap!

And just to say thanks in general for being a super supervisor (!) etc, over the past yr or so. I appreciate everything you've done for me and have enjoyed working with you.

I think that enough for now, I will start pestering you soon with questions about Goettingen!!
(lucky you..)

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Figure 36: C: Individual project, S: BEng, L: 4th year, W: B.Porr, H: Making an appointment with a student, LO: 5.5, UP: 4.5
Figure 37: C: Psychology of perception, S: BEng, L: 3rd year, W: B.Porr, H: Comments from the examiners how to change the exam script, LO: 5.5, UP: 6
Section B

Q6. Action potentials:
(a) Sketch an action potential with proper time axis and membrane potential. [4]
(b) Indicate when the sodium channel is activated/inactivated/de-inactivated in every 
phase of the action potential. Which state determines the refractory time? [10]
(c) Why is an action potential travelling only in one direction? [2]
(d) In multiple sclerosis the myeline sheath degenerates. What impact does this have on 
perception and motor activity? [4]

Q7. Hodgkin and Huxley model:
(a) In the Hodgkin and Huxley model the sodium current is gated by the conductances
\( m(V - E_{Na}) \) and \( h(V - E_{Na}) \). Why do we need the two conductances \( m \) and \( h \)? [10]
(b) The conductances \( m, n \) and \( h \) are described by the following differential equation:
\[
n(V,t) + \tau(v) \frac{dn(V,t)}{dt} = n_\infty(V)
\] 
Solve this differential equation for \( V \) and explain the meaning of \( \tau(v) \) and \( n_\infty(V) \). [10]

Q8. Central visual processing:
(a) Draw a diagram showing the basic stages of visual processing from the retina up to 
the visual cortex. [3]
(b) Define “receptive field”. [3]
(c) What is a grandmother cell? Which problem is pointed out with this fictional cell? [4]
(d) Visual disparity and motion detection are closely related. Explain this with a circuit 
diagram which could be used with a simple modification for both disparity detection 
and motion detection. [10]

Q9. Pharmacology:
(a) Alcohol enhances the transmission of GABA. Why does it make people uncon-
cious? [5]
(b) TTX is a sodium channel blocker. Explain its effect on the neuron in particular if it 
affects the resting potential or the action potential. [5]

Figure 38: C: Psychology of perception, S: BEng, L: 3rd year, W: B.Porr, H: State of the exam script as drafted by me and submitted to the external examiner, LO: 5.5, UP: 6
Colour perception:
(a) Draw a curve showing the absorption of a blue object for different wavelengths. Show the spectra resulting from that object when illuminated by (a) bright sunlight or (b) yellow streetlighting. Argue why we still perceive the same colour. What is the phenomenon called?

(b) Name a way of colour coding which does not directly use the primary colours (red, green and blue).

(c) Which experiment demonstrates the opponent theory of colour vision.

Q5. Sound:
(a) How does the basilar membrane respond to different tones at different frequencies? Sketch what the pressure distribution along the basilar membrane looks like for low frequencies and high frequencies.

(b) The frequency is plotted usually logarithmically in audio applications. Why is this done? Your explanation should be in terms of the critical bandwidth.
Section B

Q6. Action potentials:
(a) Sketch an action potential with proper time axis and membrane potential. [4]
(b) Indicate when the sodium channel is activated/inactivated/de-inactivated in every phase of the action potential. Which state determines the refractory time? [10]
(c) Why is an action potential travelling only in one direction? [2]
(d) In multiple sclerosis the myeline sheath degenerates. What impact does this have on perception and motor activity? [4]

Q7. Hodgkin and Huxley model:
(a) In the Hodgkin and Huxley model the sodium current is gated by the (dimensionless) weights $m^3(V - E_{Na})$ and $h(V - E_{Na})$. Why do we need the two weights $m^3$ and $h$? [10]
(b) The weights $m$ and $h$ are described by the following differential equation where $x$ is a placeholder for $m$ or $h$:

$$x(V,t) + \tau(V) \frac{dx(V,t)}{dt} = x_\infty(V)$$

Solve this differential equation for $x$ and explain the meaning of $\tau(v)$ and $x_\infty(V)$. [10]

Q8. Central visual processing:
(a) Draw a diagram showing the basic stages of visual processing from the retina up to the visual cortex. [3]
(b) Define “receptive field”. [3]
(c) What is a grandmother cell? Which problem is pointed out with this fictional cell? [4]
(d) Visual disparity and motion detection are closely related. Explain this with a circuit diagram which could be used with a simple modification for both disparity detection and motion detection. [10]

Figure 40: C: Psychology of perception, S: BEng, L: 3rd year, W: B.Porr, H: State of the exam script after changes have been made as suggested by the external examiner, LO: 5.5, UP: 6
Subject: Re: dip paper
From: B. Porr <B.Porr@elec.gla.ac.uk>
Date: Fri, 24 Dec 2004 17:12:38 +0000
To: [Redacted]@elec.gla.ac.uk

Dear [Redacted],

I'm answering to it now:

The sampling theorem is stating that the BANDWIDTH of the signal determines the minimum sampling rate. For example, if you have a signal from 100MHz to 200MHz, you need a sampling rate of 200MHz and not 120MHz. This becomes probably more clear if you simulate an audio signal and sample it before and after modulation. To recover the audio signal it is in both cases sufficient to sample with twice the BANDWIDTH of the audio signal, not twice of the carrier signal.

Marvin, can you please check if in the solution mentions bandwidth? Maybe, but the statement has fallen into a trap. He/she hasn't understood the sampling theorem properly. In particular if he/she is referring to information theory. In information theory it's not important that different signals can be recovered. As long as the bandwidth is half of the sampling frequency information is preserved. This makes also clear that down-sampling of a modulated RF signal does not change the information content.

The question is directly related to the last assignment. The sampling rate was 1024 and the telephone generates only tone frequencies from 8000 to 13000. The bandwidth is 4000 which does not violate the sampling theorem. I see the tones could be recovered.

So, no need to change anything.

Merry Christmas!

/Brend

Quoting [Redacted]@elec.gla.ac.uk:

Brend,

I am attaching the external's comments. Could you look at the solution to Ask. I can make the small changes to the paper.

Regard,

http://www.brendporr.me.uk

This email sent through IMP: http://horde.org/IMP/
Figure 42: A) C: Acoustics and Audio technology, S: BEng, L: 4th year, W: B.Porr, H: Mid term feedback via moodle. B) C: Digital signal processing, S: MEng, L: 1 year course, W: B.Porr, H: Mid term feedback via moodle, LO: 5.6, UP: 1.2

Subject: Re: contemporary cinema
From: B.Porr<br>Subject: Re: contemporary cinema<br>Date: Tue, 23 Feb 2016 11:43:05 +0000

Dear [Name],

I hope this email finds you well. I would like to give you some feedback about the course contemporary cinema and share some insights on the subject.

Contemporary Cinema is an interesting subject to delve into the different perspectives and techniques used in film-making. The course covered various aspects of cinema, from the technical aspects of filmmaking to the cultural and social implications of films.

The course was well-structured and covered a wide range of topics, from the history of cinema to modern film theory. The lectures were engaging and informative, and the assignments were challenging but manageable. The assignments were designed to encourage critical thinking and creative expression, which is important in the field of cinema.

I appreciated the variety of films we watched in class, which helped us understand different approaches to filmmaking. The discussions and debates in class were lively and stimulating, and the feedback from the course coordinator was always constructive. I've learned a lot.

The contemporary film industry is constantly evolving, and the course provided a good overview of the current landscape. The course covered the impact of technology on cinema, and the role of streaming services and digital platforms in shaping the industry.

The assessment was fair and well-structured. The mid-term exam was challenging, but I felt prepared after the thorough coverage of the course material. The assignment on film criticism was a great opportunity to apply what we learned in class.

The course had a good balance of theory and practice, and I enjoyed the hands-on workshops and group projects. The feedback from the course coordinator was always constructive and helpful.

I am happy to discuss these issues with you face to face (if the email allows for this).

I will attend the screenings from now on, but not the seminar "contemporary cinema" any more.

Sincerely,
B.Porr

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Figure 43: C: Contemporary cinema, S: Adult classes, L: N/A, W: B.Porr, H: feedback I have given to the course coordinator, LO: 5.6, UP: 2
1. ‘Realistic’ ISO learning.
Dr B Porr

ISO learning is a learning scheme which is able to turn reactive behaviour into proactive behaviour. For example, a robot first bumps into a wall and then retracts (reactive behaviour). After learning the robot is able to anticipate the collision with the wall and turn already earlier (proactive behaviour). So far ISO learning is only biologically inspired. The learning itself is not very realistic. It changes in classical ANN style the weight of a synapse by changing a multiplicative factor.

Biology seems to work differently. Synapses usually increase their weight when they are heavily driven. In addition synapses saturate at high weights. The actual learning signal is often a neuromodulator which changes the transmission gain rather the synaptic weight.

Thus, the task is here to replace an ANN style learning rule with a more realistic learning rule.

All this shall be implemented on a robot that has to solve a simple task like finding a blob on the floor from the distance.

Specific tasks include the following:
a) Program the robot task in classical ISO learning:
http://www.berndporr.me.uk/royalsoe/
b) Modify the learning rule step by step to achieve more biological realism.
c) Compare the performance of the classical ISO learning with the new more realistic ISO learning.
A reversal learning task demonstrates how to combine classical and instrumental conditioning

Anonymous Author(s)
Affiliation
Address
City, State/Province, Postal Code, Country
email

Abstract

We present a model of the limbic system which is able to solve a simple discrimination task where an agent has to distinguish between real food and fake food. After successful learning the agent has to learn the opposite discrimination which is known as reversal learning. With our model we provide an explanation why cannabis impairs reversal learning. From a conceptual point of view we demonstrate how to combine classical conditioning with reinforcement learning.

1 Introduction

In reversal learning an animal has to first learn a simple discrimination and at a later stage the opposite discrimination. For example, a rat learns that food is always in the left compartment of a cage. Then after a while the food is placed in the right compartment so that the rat has to unlearn the previously acquired behavior in order to learn the new target.

Reversal learning and related paradigms (e.g. extra/intra-dimensional set shifting) cannot be explained by simple animal learning models, for example classical conditioning where an unconditioned response (UR) elicited by the unconditioned stimulus (US) is replaced by the conditioned response (CR) after having learned the conditioned stimulus (CS) [1, 2]. The problem with classical conditioning is that it has no explicit value system because values and actions are tied together. This becomes a problem if a stimulus substitution has been learned which does not lead to a reward. Actor/critic models aim to solve this problem by reinforcing just the actions which will lead to a reward. This offers great flexibility of action choice so that virtually any action can be selected to retrieve a reward. However, this is also the curse of actor/critic architectures: correct action selection can become very difficult when the decision space is large [3]. A solution to this problem is not to select actions per se but to select the right stimulus substitution. Consequently, [4] suggested to combine classical conditioning and reinforcement learning and proposed that the limbic system uses of these two learning principles. In this paper we demonstrate with a reversal learning task that indeed the limbic system seem to combine classical conditioning and reinforcement learning.

The limbic system is one of the oldest parts of the brain and is well known for its role in the mediation of motivation and reward [5, 6]. Most of its components are located deep inside the brain, predominantly in the midbrain. We will focus on the following nuclei of the limbic system: The nucleus accumbens (NAcc) and the ventral tegmental area (VTA) which provides the dopamine (DA) input to the NAcc.

Interestingly in recent years, the nucleus accumbens has been re-conceptualised into two distinct areas (see Fig. 1) known as the shell and the core [7]. The core seems to be responsible for the control of adaptive motor actions [6, 8] such as lever pressing or targeting food [9]. On the other hand the shell seems to store the reward value of conditioned stimuli, where the conditioned stimulus can be

Figure 45: C: Individual project, S: BEng, L: 4th year, W: B.Porr, H: A conference submission which is based on a 4th year project, LO: 5.6, UP: 2

73
1. Performing data acquisition with embedded Linux
Dr B Porr

The goal of this project is to produce a commercial item: a stand-alone data acquisition device which transmits its data via Ethernet to a host. The basic hardware does exist but no software except of uCLinux itself. The hardware platform will be the open source uClinux-stamp (http://blackfin.uclinux.org/). The host shall use the comedix framework (http://www.comedi.org/) to establish a standardised API to the user-space. Research and Enterprise here at the university are keen to apply for a SMART award at the end of the project so that the candidate has the chance to set up a small business. The application deadline for the SMART award is May 2006. Thus, this project is really for somebody who wants to do some serious business. The product can be sold through the website: http://www.linux-usb-daq.co.uk/ where also further support is available.

Specific tasks include the following:

a) Connect a simple A/D converter to the uCLinux stamp.

b) Write software for the uCLinux stamp in C which performs analoge or digital data acquisition.

c) Define a protocol which transmits data to the host via an IP- socket.

d) Write a driver which receives data on the host which interfaces to comedix.

e) Optional: add additional protocols like RSS feeds so that people can watch the data with their news readers, etc.
Assignment, Digital Signal processing: Causal filtering

Bend Porr
October 21, 2004

The task of this assignment is to filter an ECG.

1. Form groups of 3 students. Record at least 3 different ECGs from one member of the group so that every member gets to do or be present in ECG. Use sampling intervals of 1.2 and 5ms. You'll get 3 ECG electrodes. Consent them to the following way: positive input to the left foot, negative input to the right arm and ground to the right foot. They will be able to do the recording and will also upload the files to the internet. Give the file a reasonable name which contains the name of the person and the sampling rate (e.g. peter1.tar).

2. Go to the URL: http://nineseq.algoverca.com/verca.tar and download your ECG. Each student has to work on a different ECG.

3. Display the original ECG in mV and mm. The amplifier has a gain of 2000, the A/D converter has 12-bit and has an input range from -0.5 to +0.5. Discuss what is signal and what is noise. In particular, identify the unwanted 50Hz hum in the spectrum.

4. Do a FFT of the ECG and discuss again what is signal and what is noise.

5. Enhance the noise to the frequency domain. Transfer the ECG back into the temporal domain and observe how the signal now looks better.

6. Now, use the filter toolbox of MATLAB to filter out the noise. Use the functions fir1 and filter to design an FIR stopband filter which attenuates the 50Hz hum. Use a Hamming and a rectangular window. Discuss why the Hamming window gives a better result. Discuss what better means in the context of ECG filtering. Think of example of the ECG.

7. Design an FIR filter which attenuates the DC component (drift) of the ECG.

8. Use IIR filter instead of FIR filters. Compare the results with the FIR filters.

9. Conclude what is the best filter approach here.

Every report must be based on a different ECG recording. Please submit the report until 15 November. You can hand it in at Vi Bureaucracy office or to me (room 519). Include the MATLAB code as well as plots of the FFT, transfer functions and impulse responses.

Figure 47: C: Digital signal processing, S: MEng, L: 1 year course, W: B.Porr, H: Distribution of the marks of the assignment, LO: 5.7
Figure 48: C: Acoustics and Audio technology, S: BEng, L: 4th year, W: B.Porr, H: Notes from a telephone conversation with a friend who works as a sound designer, LO: 5.7, UP: 6
Figure 49: C: Acoustics and Audio technology, S: BEng, L: 4th year, W: B.Porr, H: subfolder for this class to store e-mails from staff, students and myself, LO: 5.7
Figure 50: W: B.Porr, H: Deadline of a conference on 31 January, LO: 5.8
Figure 51: C: Individual project, S: BEng, L: 4th year, W: B.Porr, H: Appointments with two students, LO: 5.8, UP: 4
Figure 52: W: B.Porr, H: To-do list, LO: 5.8
Figure 53: W: B.Porr, H: To-do list, LO: 5.8
Subject: Re: Thank you, behavioural data, etc
From: Bernd Porr <b.porr@sfc.gla.ac.uk>
Date: Thu, 06 Jul 2006 21:36:06 +0100
To: H: sitting at the office and enjoying a latte...

Thanks for all the material. Looks very interesting.
I think we've got quite a good case. Also with the cannabis influence on the GABAergic pathway, I'll write a first draft when I'll be back from Graz (4 Aug) and send it to you. With the NIFS article as a basis I think it should be very easy to write something.

All the best
/Bernd

[Message starts]

Hi Bernd,

As we talked about, I have attached the data for the reversal learning with NIF. I have just included all the trials of criterion data for each of the discriminations so you have it all anyway.

I have had a quick look about D2 receptor control of the NAC - VTA GABA projection: In the VTA, D2 receptors are on GABAergic and glutamatergic (but not cholinergic) terminals so they can inhibit GABA and glutamate release; potentially therefore they could decrease the GABAergic signal from the NAC to the VTA. References are: Beigel and Logica 2004 Proc Natl Acad Sci USA 101 10970-10975 and Logica and Beigel 2005 Neuropharmacology 48 1109-1116. Probably after I get back from holiday I will have more of a think about the cannabis aspect and how this would fit into a good story. There is probably a few publications since my paper so I would like to take some time to put this all together with your model too.

I also had a quick look at D1R studies ... There are quite a few studies looking at various aspects of reward. I can't find any D1R studies where they have managed to subdivide the accumbens into core and shell regions, but a few do report either accumbens or ventral striatum. I guess this a major limiting factor as you said.

Studies have looked at prediction error, anticipation etc. There is a variety of rewards used such as juice, money, happy faces, plus e.g. alcohol, amphetamine. There are also a couple of interesting reversal learning D1R papers (Cools / Robbins) that I have attached. As the D1R D1R D1R response is thought to reflect prefrontic activity this signal is probably from striatal and glutamatergic terminals mainly.

This is an interesting aspect to me for future work as I need a task that activates the striatum and may be a way of looking at dopamine release using PET for a (behavioural / cognitive process) task, but event-related and then there is the possibility of looking more closely at event-related processes using fMRI in the same subjects and correlating the two. There are relatively few behaviour / PET / dopamine studies as this would be a good thing to do, and I also have the idea of using a dopamine re-uptake inhibitor (ropinirole) during the task to amplify the DA signal. (This would be good for lots of applications as the PET tracer displacement isn't that sensitive esp to behavioural stimuli of e.g. amphetamine). Do that would also be novel. This could also be combined with some genetics. These are probably the studies that I would like to do here anyway but I am particularly interested in salience attribution and reversal learning due to the role of these in schizophrenia and addiction, so maybe it would be good to think for a bit whether these could somehow be combined with your model which would be really neat!! Something to think about anyway maybe.

Figure 54: W: B.Porr, H: Correspondence about a paper-submission, LO: 5.9, UP: 6
Subject: paper, human walking
From: Bernd Porr <B.Porr@elec.gla.ac.uk>
Date: Tue, 02 May 2006 11:26:31 +0100

Hallo,

hier ist unser paper uber den "rundbot":
http://www.berndporr.me.uk/rundbot/

Die haben auch einige filme unter dem link.
Wenn Du im moment "rundbot" sei google eintritt, dann gibt es hunderte von treffern. ;-) 

Gruss
bernd

---
www: http://www.berndporr.me.uk/
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Glasgow, G12 8LT

Bernd Porr <b.porr@elec.gla.ac.uk>
Dr
University of Glasgow
Department of Electronics & Electrical Engineering

Figure 55: W: B.Porr, H: Correspondence about a paper-submission, LO: 5.9, UP: 6
Subject: Re: Meeting about mathematics teaching - and more widely
From: Bernd Porr <Bernd.Porr@elec.gla.ac.uk>
Date: Wed, 21 Jun 2006 15:58:39 +0100

To: [Redacted]

Dear [Redacted],

It certainly affects other courses, in my perception course the students selectively avoided everything which involved math, in particular differential equations and neural network models. Seems to in general the problems that they have difficulties with abstractions. Had also some eye-openers with circuit diagrams.

I’ll come at 10am.

Bernd

WWW:  http://www.berndporr.pe-uk/
      http://www.linux-uk-day.co.uk/
Mobile: +44 (0)141 330 3237
Work:  +44 (0)141 330 3237
       University of Glasgow
       Department of Electronics & Electrical Engineering
       Room 519, Rassdie Building, oakfield Avenue,
       Glasgow, G12 8LT

Dear Colleagues,

It was suggested at the examiners' meeting that we should meet to discuss mathematics teaching and whether support could be found from the Learning & Teaching Development Fund. I suggest that we meet:

1000-1100 on Monday 26 June in Room 314

I also feel that it would be better to have a somewhat broader agenda than maths teaching alone; skill problems affect electronics and everything else. All subjects might benefit if we were to improve the motivation and engagement of students, for instance.

Please let me know if this is a bad time for you and I’ll have another go if necessary.

Bernd Porr <Bernd.Porr@elec.gla.ac.uk>
Dr
University of Glasgow
Department of Electronics & Electrical Engineering

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Figure 56: W: B.Porr, H: Commented on an initiative how to improve math skills with students, LO: 5.9, UP: 1
Subject: Re: Engineering Day 23rd June
From: Bernd Porr <B.Porr@elec.gla.ac.uk>
Date: Tue, 27 Jun 2006 14:35:17 +0100
To: 
CC: 

Dear [Name],

thanks for the feedback.

Sorry for the slight glitches during the day but I think in general it worked out quite well.

Indeed, I told the people from Rolls Royce that there is just a projector and they were satisfied with that. I could have filled the time while waiting for the laptop but I felt that this would have been inappropriate to "steal" them the show and to alienate them.

For the next meeting I think it would be more appropriate not to have a presentation about engineering in the morning but rather a presentation about engineering at the university and what we expect and leave the industrial part really to the industrial people in the afternoon. Basically what I have said in the wrap up could be done in the morning session.

Thanks again for the feedback.

Regards
Bernd Porr

www: http://www.bernd.porr.net.uk/
http://www.gla.ac.uk/
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Work: +44 (0)141 332 5297
University of Glasgow
Department of Electronics & Electrical Engineering
Room 515, Bankside Building, Oakfield Avenue,
Glasgow, G12 8LT

Dear Bernd and Scott,

On behalf of ISCO, I want to record our thanks for arranging and hosting Friday’s event. All pupils who attended felt it was a worthwhile day. Workshops seemed to be popular with most, although some felt a shorter time at more workshops would be better, and inevitably others would prefer just one workshop in much more depth! Not easy to please everybody!

The last minute changes to workshop presenters and speakers did not go unnoticed, with several pupils sensing a lack of coordination between staff and slight disorganisation throughout the day. I would have to agree with this but fully appreciate that these things can and do happen. The opening presentation, whilst well delivered, was perhaps too specific for some pupils who were looking for a more generic introduction to Engineering. The PowerPoint presentation used displayed 2002 data throughout which may have seemed slightly out of date to pupils. The Rolls Royce speakers were very good and related well to pupils, but came equipped with their presentation on a memory stick to find there was no laptop set up for them. (Maybe they hadn’t asked for one?)

However, most feedback from pupils was positive and encouraging, and they have all gained something worthwhile from the day’s activities. I would like to thank very sincerely you and all your colleagues involved in the planning and presentation of the day as I do appreciate the hard work that goes into setting up such an event. Bernd, a special thank you for facilitating the smooth running of the day, and your good humour throughout.

Kind regards


Figure 57: W: B.Porr, H: Comment on feedback given by the ISCO people after the info day, LO: 5.9, UP: 1
Subject: Linux machines
From: Bernd Porr <B.Porr@elec.gla.ac.uk>
Date: Mon, 17 Oct 2003 11:34:08 +0100
To:

Hi

I've done a fresh installation of debian surge on 3 machines in the lab. I've added the remote log to all machines.

Sorry, haven't managed to create a .sql file. I'll try to do it today. Same with the streaming server.

/bernd

---

www: http://www.berndporr-me.uk/
http://www.cisim-pgb-fas.co.uk/
Mobile: +44 (0)7440 340065
Work: +44 (0)141 330 5237
University of Glasgow
Department of Electronics & Electrical Engineering
Room 533, Rankine Building, Oakfield Avenue,
Glasgow, G12 8JZ

Bernd Porr <b.porr@elec.gla.ac.uk>
Dr
University of Glasgow
Department of Electronics & Electrical Engineering

Figure 58: W: B.Porr, H: Informed the IT department about updates I did on the lab computers, LO: 5.9, UP: 6
Figure 59: C: Peer group meeting, S: NLTP, L: 2nd year, W: B.Porr & Alice Miller & Zoe Shipton, H: Discussing issues about NLTP, LO: 5.9, UP: 6
References


