Teaching portfolio

1. Teaching CV: A list of any lecturing and supervision tasks, including specification of academic fields, scope, level (bachelor, master, continuing education, PhD) as well as any external examiner tasks.

Dept. of Health Science and Technology, Faculty of Medicine, Aalborg University, Denmark

• June 2006 – Jul. 2009 and since April 2011 – to date. Employed with part time teaching duties

Project Supervision
•Sept. 2015 (ST7), Surface Electrical Stimulation of Median and Ulnar Nerve Trunks at Elbow for Sensory Feedback in Phantom Limb Pain Therapy
•Sept. 2015 (Robotics) Group 364, EMG based Control of a Robot Arm for Tetraplegics*
•Sept. 2015 (Robotics) Group 363, Development of an EMG controlled robotic arm to restore upper limb function*
•Sept. 2014 (MedIS) Group 3016, Characterization of Sensation and Discomfort Thresholds Dependence to Electrodes Size and Stimulus Intensity in Surface Electrical Stimulation of Arm
•March. 2014 (ST8) Group 875, Gender Effect in Human's Ability in Sensory Discrimination of Surface Electrical Stimulation *
•Sept. 2013 (MedIS) Group 307, Brain Computer Interface for Rehabilitation *
•Sept. 2012 (P5) Group 535, Effects of Short term neuromuscular electrical stimulation of quadriceps femoris in male handball players
•Sept. 2012 (P3)Group 370, Tunge interface *
•Sept. 2011 (Sport) Group R154, Gymnasieelevers sundhedsprofil
•Sept. 2011 (Sport) Group R153, Sundhedsprofiler blandt Medialogistuderende og Idrætsstuderende på AAU
•Sept. 2008 (ST3) Group 374, Tungestyret tastatur*
•Sept. 2007 (ST3) Group 373, Tungestyret mus
•Sept. 2006 (ST3) Group 370, Tungestyret mus til tetraplegikere*
Censor
•Jan. 2016 (Sport, 3rd sem.) NTP Course
•Jan. 2016 (ST3) Group 375, System til detektering af kropsbalance
•Jan. 2012 (P7) Group 772, Visual sham feedback during motor imagery and peripheral electrical stimulation based on the principle of Hebbian associativity: a pilot study
•Jan. 2012 (Sport) Group R275, Fysisk aktivitet og sundhed
•Jan. 2012 (Sport) Group R274, Fysisk aktivitet og sundhed. Sundhedsprofiler

*Supervision on half shared projects at AAU.
The projects were finalized by an exam evaluated by a committee formed by a censor from HST and supervisors of the project.

Lectures
•05.12.2006 Lecture on Tongue Control System at the Technology Seminar, Ebeltoft, organized by Hjælpemiddelinstituttet. Two hours lecture.
•07.10.2008 Technology in Health Science. Lecture on Tongue Control System at HST, Aalborg University. Two hours lecture.
•17.01.2009 Lecture on Tongue Control System at the Seminar of the Annual Reunion of Dentists at Dental Clinic Andersen and Bentsen 'Smiligen', Aalborg. One hour lecture followed by one hour seminar.
Dept. of Communications, Faculty of Electronics and Telecommunications,
Technical University of Timisoara, Romania

• July 1995 – Dec. 1999. Assistant Professor, employed with full-time teaching duties

Teaching duties, course, seminar and laboratory each year (two semesters per year) for the following disciplines

•Digital Transmission Systems in the 4th year of education of the six years Masters Degree in EE education program.
•Integrated Services Digital Networks in the 6th year of education of the six years Masters Degree in EE education program.

2. Study administration: A list of any study administration tasks, e.g. study board membership, head of studies or semester or course coordinator, accreditation, etc.

3. University pedagogy qualifications: A list of any completed courses in university pedagogy, PBL courses, workshops, academic development projects, collegial guidance and supervision, etc.

•2014-2016 Adjunktpædagogikum at Aalborg University
•2013 Pedagogy Course at Aalborg University
•2012 Problem based learning Course at Aalborg University
•2011 PhD Course Supervision at Aalborg University,
•2001 Professional Communication, PhD course at Aalborg University
•1992-1993 Course in Sociology and International Relations at the Faculty of Electronics and Telecommunications, Technical University of Timisoara, Romania. The course was part of the curricula for the Master Degree in EE education program of six years.
•1992-1994 Course in Pedagogy in the 3rd and the 4th year of study (56 hours course and 56 hours seminar) at the Faculty of Electronics and Telecommunications, Technical University of Timisoara, Romania.

4. Other qualifications: Conference attendance, editorials, presentations, etc. relating to education, 'University Teaching Day', etc.

2011-2015 'University Teaching Day'

5. Teaching activity development and teaching materials: A list of any contributions to the development of new modules, teaching materials, study programmes, e-learning, collaboration with external business partners, etc.

Project guide TMS 320CX DSP Telecommunications Systems Design, Student's Guide, Faculty of Electronics and Telecommunications, Romania, 1997

Conference paper on teaching: M. Otesteanu, E. R. Lontis, Teaching TMS320C31 using DSK3X in PCM Communications Individual Projects, The Second European DSP Education and Research Conf., ESIEE 1998, Paris.

6. Teaching awards you may have received or been nominated for.

7. Personal reflections and initiatives: Here you may state any personal deliberations as regards teaching and supervision, any wishes and plans for further pedagogic development, plans for following up on feedback/evaluations from students, etc.

Reflections on Problem Based Learning for High Education in Engineering

Children love to play, having a remarkable curiosity drive. Adults might still have this curiosity, even though not in the same form, when investigating the environment in all of its aspects. We acquire knowledge in different contexts, we communicate and interact socially. We are however not the only ones doing so. Besides the fact they are extremely effective hunters, killer whales share as well similar features with humans: they are social, they learn, and they play. Scientists wonder how they learn specific hunting techniques that require communication, coordination, and nevertheless skills that astonish observers during hunting. They have dialects specific to each family and it seems that they have a strong family bound where new members inherit same family customs. Humans are highly influenced by the society in addition to their family inheritance. The process of learning can be self-acquired or induced by the social and working requirements. The learning process is not always straightforward to characterize, however, it generally includes a knowledge base, a transmitter such as a person, written material, a series of events, and a receiver involving as well the need, motivation, the ability to communicate, the level of understanding of the transmitter, and the knowledge base of the receiver, among others.

Knowledge has been accumulated in written form and generalized so much so that the process of gaining a particular piece of knowledge has nearly been lost or not adequately described in literature. For example, various technical methods, like those from signal processing, can be found in books in a very synthetized manner, leaving sometimes little room for interpreting of their use in a real life scenario. Engineering concepts have to be well understood and this might often require hand-on practice assisted by an experienced person. Often reading literature will not provide appropriate and understandable answers to the problem investigated.
Knowledge may be regarded within the learning process as a dynamic variable whose weigh in building new knowledge to serve as basis for innovation varies considerable depending on the contextual motivation, interest, level of understanding and practical skills of the student. Knowledge requires time to accumulate and a change in motivation due to various reasons (e.g. an increased level of understanding after practical work) may boost the efficiency of understanding and practically use of past knowledge, corroborated as well with newly acquired knowledge.

The most spread technique of disseminating knowledge in higher education in engineering in the past years was that of

lecturing followed by practical work in form of seminars and laboratory work. Principles are highlighted in lectures and finally examples on practical used of the exposed concepts are given, a deductive way of teaching. This method is often linked to the traditional teaching methods where information is teacher-directed according to a curriculum. Students have to follow a more or less rigid way of knowing what they are supposed to learn. Philosophers and researchers have classified this method as belonging to instructivism. As opposed to instructivism, the constructivism (in addition to Socrate teaching as group facilitating) is student-centered, with emphasize on why one needs to know a certain piece of knowledge attempting to boost the student's motivation and awareness. A greater motivation would results in a better learning process. Furthermore, a new dimension has been added to the learning process besides the knowledge: innovation. Curriculum must be correlated with what the student needs to know when facing the labor market. Concepts such as working in team, ability to communicate/inquire, to reflect on the lessons learned, to evaluate possible solutions, and the use of knowledge he/she gained adapted to a changing environment, consequently being able to acquired new knowledge in finding solution to the given task, have to be already incorporated as a tools package in the study frame of some higher education institutions. Inquiry-based, practice-based, problem-based, project-based, or project/problem (hybrid) based learning are part of the inductive teaching techniques where students start with a challenge becoming aware of what they need to know for finding a possible solution. Students are guided by an instructor/facilitator in their journey towards a possible solution, and guidance and stick probes are often provided in form of appropriate questions to elicit answers from students. The goal is to obtain an effective and attractive life-long learning process involving the student both cognitive and motivational; students are 'synchronized' with the study's curriculum on-the-go.

Both deductive and inductive teaching methods have advantages and disadvantages. I went through literature and found studies on comparing classic and problem based learned methods. I could not find however a more precise definition of efficiency when referred to the two methods just mentioned. Obviously, each institution set goals for their own educational programs and efficiency evaluation must be closely linked to these goals. To my opinion the models employed in the corresponding studies have far more factors than discussed. It is clear that both the core knowledge and the innovative skills interplay when possible solutions for a give problem/task must be found. Logic would say that more core knowledge, which is known to be achievable when using deductive methods, would lead to more options for possible solutions. However, same applies for innovative skills that are obtained in a higher degree when applying inductive methods. Principles enumerated in the problem based learning method are extremely useful, as most of us use these principles in our daily life without even being aware of the fact that we use them. I use PBL in in my research and daily life, however without reporting my activities to the usual taxonomy of PBL. When control is transferred from teacher to student the main pitfall is that the student might not be able to cope to this type of self-control. Consequently careful planning of the study, correlated real-life problem formulation between topics within and between semesters must be thoroughly considered in PBL based curriculum.
Raising awareness of problem based learning principles for both students and teachers is an essential step towards a life-long learning process in the higher education and beyond.

8. Any other information or comments.