

Teaching portfolio

1. Teaching CV: A list of teaching and supervision tasks, including specification of academic fields, scope, level (bachelor, master, continuing education, PhD). Please state the teaching method used (e.g. lecture, class teaching, exercises, supervision, examination, coexamination, distance teaching, internet-based teaching and evaluation of teaching). Please also indicate the language of instruction.

Teaching experience obtained in postgraduate education (third cycle, PhD)

- (5 ECTS, English) Lecture on Machine Learning and Audio Signal Processing in Autumn Series in Acoustics (TU Eindhoven, NL), organized by Marteen Hornix, Silvin Willemsen, and others (2023). The school included a range of activities and lectures. See <https://assaeindhoven.org/assa2023/> Courseware at <https://github.com/SMC-AAU-CPH/AI-Music-Workshop-23>
- (2.5 ECTS, English) Lecture on RT-MLOps in MLOps Summer school (DTU - Technical University of Denmark), organized by Nicki Skafte Detlefsen (2022). The school included a range of activities: lectures, discussion sessions, poster session, a hackathon, and social events. Courseware at https://skaftenicki.github.io/dtu_mlops/
- (5 ECTS, English) "Virtual, Augmented, and Mixed Realities" for PhD Students in Denmark: 5 double lectures (2x45), study hours (group work on selected topics), and a final workshop. The total number of students: 15 (2019). Co-organization with Professor Stefania Serafin, and Associate Professor Rolf Nordahl, Assistant Professor Michele Geronazzo, and Associate Professor Niels Christian Nilsson.
- (5 ECTS, English) "SMC Summer School on Product Sound Design, Innovation, and Entrepreneurship" for 30 international doctoral students, at the Aalborg University Copenhagen in July 2012. I have contributed to the contact teaching sessions and supervised practical work, with Davide Rocchesso and Andy Farnell, organized by Rolf Nordahl and Stefania Serafin
- (3 ECTS, English) "COST- SID Product Sound Design Summer School" for 23 international doctoral students, at the Aalto Design Factory (Espoo, Finland), in August 2010. I have planned the curriculum, the core content, learning objectives and the teaching sessions, with Stefano Delle Monache and Antti Jylhä (Scientific Report presented to the management committee of the EU FP7 COST Action IC-0601).

Teaching experience obtained in degree education (second cycle, MSc)

- (5 ECTS, English) "Machine Learning for Media Experiences" for MED7 M.Sc. students: 12 double lectures (2x45), study hours (group work on selected topics), and a 1-day workshop. The total number of students: 40 (2021). Oral exam with internal censor, conditioned on mini-project hand-in.
- (5 ECTS, English) "Embodied Interaction" for MED8/SMC8 M.Sc. students (semester 8): 10 double lectures (2x45), and study hours (group work on selected topics). Co-organization with associate professor Sofia Dahl. Courseware at <https://github.com/SMC-AAU-CPH/smc8-courses-embodied-lma-github>
- (5 ECTS, English) "Signal Processing for Interactive Systems" for MED8/SMC8 M.Sc. students (semester 8): 7 double lectures (2x45), and study hours (group work on selected topics), a full-day workshop. Courseware at <https://smc-aau-cph.github.io/SPIS/README.html>

Teaching experience obtained in basic degree education (first cycle, BSc)

- (5 ECTS, English) "Audio Processing/Processing af lydssignaler" for MED4 B.Sc. students: 12 double lectures and group work on selected topics). Lectures as Jupyter Notebooks that can be accessed at <https://colab.research.google.com/github/SMC-AAU-CPH/med4-ap-jupyter/blob/main/>
- (5 ECTS, English) AI programming elective for MED6 B.Sc students: 10 double lectures and group work on selected topics). Lectures as Jupyter Notebooks.

Supervision

Doctoral degrees

- Co-supervision (with Stefania Serafin) of Anders R Bargum "Deep Learning based Voice Conversion for AVATAR Therapy", Innovationsfonden Industrial PhD, with Khora VR. 2023-2025
- Instruction of Dr. Sc. (Tech) Antti Jylhä, "Sonic Gestures and Rhythmic Interaction between the Human and the

Computer", Aalto University, School of Electrical Engineering, Espoo, Finland. April 2012. Opponent: Prof. Stefania Serafin (AAU, Denmark). Top grade with distinction.

- Co-supervision (with Dr. Kalev Tiits) of Dr. Arts Koray Tahiroglu, "Interactive Performance Systems: Experimenting with Human Musical Interaction", Media Lab., University of Art and Design, Helsinki, Finland. December 2008. Opponent: Prof. Robert Rowe (USA).

M.Sc. degrees

My master thesis supervision and evaluation duties at AAU include more than thirty theses as of September 2024. Three master theses are commercialized as SW products.

Non-degree, semester project supervision

I have supervised over seventy-five semester projects, ranging from MED1 to MED9.

2. Study/programme administration and management: Experience in programme management and coordination. A list of study administration tasks, e.g. study board membership, chair of study board, semester or course coordinator, accreditation tasks, etc. Experience in planning teaching activities. Experience in programme development. Participating in committees and commissions etc. on education issues.

I have been a member of Media Technology Study Board in 2022-2023.

I regularly coordinate SMC8. In the past, I also coordinated MED7 (Fall 2014 and 2015) and SMC7 (Fall 2023 and 2024).

I have presented the SMC master program to Danish sound professionals (April 2014), international agents of the AAU, and other universities (Lappeenranta University of Technology (FI), Bilkent University and Bahcesehir University (TR), November 2014). I have worked in its integration to the MED MSc program as a specialization, starting from 2025 intake.

I have participated in the programming track for the 2013/2014 revision of the Medialogy Bachelor Curriculum and led the coordination of MED2 curriculum development within. I also took part in Medialogy and Sound and Music Computing Curriculum Development in 2018, and again Medilogy MSc in 2020.

3. Formal pedagogical training: A list of completed courses in university pedagogy, PBL courses, workshops, academic development projects, collegial guidance and supervision, etc. Written assessment from the course in university pedagogy for assistant professors. Participation in conferences on pedagogy and didactics. Please enclose any documentation of the above, such as course certificates, references, etc

I completed the University Pedagogy for Assistant Professors in September 2015 at AAU, based on the personal and institutional frameworks, and discussions and work with the course organizer Lone Krogh, and my supervisors Lars Birch Andreassen and Sofia Dahl. I enclose my training certificate.

Previously, in Finland, I have participated in the following programs:

- Teaching Development Program Opekumppani at the Aalto Design Factory, 2010. Special focus on PBL. The program includes three meetings (3x2h) and an experiential teaching session at the Aalto Design Factory (about 20h total, including planning and running), and oral evaluation.
- Certificate for pedagogical studies, by completing the course Eri-0.4001 Myself as a Teacher, (5 ECTS, 12x1/2 day contact teaching and 6 learning assignments, oral evaluation, final certificate), organized by the Teaching and Learning Development Unit, Helsinki University of Technology, 2009, with a special focus on PBL. I enclose my certificate.

Since 2020, I have obtained course certifications including Introduction to Edge AI (Edge Impulse), MLOPs Weights and Biases Experiment Tracking, MLOPs Proficiency (Abacus AI), Signal Processing and Deep Learning Onramps (Mathworks), Elements of AI (University of Helsinki). They can be viewed online at <https://www.linkedin.com/in/cerkut/details/certifications/>

In 2022, I attended and completed the "Introduction to Quantum Computing & Hybrid HPC-QC Systems Workshop", organized by ENCCS and NordiQuest. Topics included: Introduction to key concepts: quantum states, qubits, quantum algorithms, QC programming in high-level languages for use cases in optimization, finance and quantum chemistry followed by testing quantum programs to ensure their correctness, Overview of the main QC hardware approaches, Integration of QC with classical computing: hybrid classical/quantum algorithms and HPC-QC systems. The workshop site is <https://enccs.github.io/nordiquest-workshop>

4. Other qualifications: Conference contributions and attendance, contributions to debates, scientific articles on pedagogical issues etc. Peer supervision, editorials, mentoring experience or other types of competence development activities.

Our dissemination of MED8/SMC8 Embodied Interaction techniques and methods are highly sought after in scientific conferences:

Erkut, C. and Dahl, S (2017). Embodied Interaction through Movement in a Course Work, Proc. ACM Workshop on Movement and Computing (MOCO), London, UK, <http://dx.doi.org/10.1145/3077981.3078026>

Erkut, C., Dahl, S., & Triantafyllidis, G. (2014a). Sketches in Embodied Interaction: Balancing Movement and Technological Perspectives (Vol. 434, pp. 30–35). Presented at the HCI International, Crete, Greece.

Erkut, C., Rajala-Erkut, A., & Dahl, S. (2014b). Exploring Felt Qualities of Embodied Interaction with Movement and Sound. Presented at the ArtsIT, Istanbul, Turkey.

And also in scientific papers:

Stefania Serafin, Cumhur Erkut, Amalia De Goetzen, Niels Christian Nilsson, Rolf Nordahl, Francesco Grani, Federico Avanzini, and Michele Geronazzo. Reflections from five years of Sonic Interaction in Virtual Environments (SIVE) workshops. 2020 J. New Music Research,6 (1). <https://doi.org/10.1080/09298215.2019.1708413>

C. Erkut and S. Dahl, "Incorporating Virtual Reality with Experiential Somaesthetics in an Embodied Interaction Course", Journal of Somaesthetics, vol 5, no 1 (2019). <https://somaesthetics.aau.dk/index.php/JOS/article/view/2305>

5. Pedagogical development and research: Development of new courses, teaching materials, teaching methods, examination types or other types of pedagogical development. Didactic and pedagogical research. Cooperation with external collaboration partners.

The most challenging period in my teaching was the COVID-lockdown and the following period, between March 12 up to now. When the Danish Prime-minister announced the lockdown on March 11, my first online teaching platform was ready at 08:30 on Teams March 12, all my example coding running on a Jupyter Hub server with access to all students. Later, I have experimented with nb-grader, as well as MATLAB auto-grader, and in 2021 with Colab Notebooks. We are currently documenting how these efforts are perceived by the students. The student feedback suggests that this effort is well appreciated, and we can continue remote teaching despite big challenges of physical interaction.

6. References on your teaching skills from superiors or colleagues. Teaching evaluations and any teaching awards received.

- I have been nominated as best teacher in Medilogi in 2022, and got the second highest student vote.

- Juho Kostiainen's mobile iOS application "AudioReitit" under my supervision has received the second prize in Helsinki Regional Transport mobile app competition 2011 (best innovative UI), and another prize from the Helsinki City Council for innovative usage of city data and open APIs in 2012. My supervisory and programmatic contribution and feedback can be assessed from the open code repository at <http://code.google.com/p/intrance-sounds/>.

- I have received teaching awards in 2004 and 2005 from the Department of Electrical and Communications Engineering of the Helsinki University of Technology, based on student feedback after the Audio Processing Seminars (co-organized with Prof. Vesa Välimäki) for regular and postgraduate students.

7. Personal reflections and initiatives: Here you may state any personal deliberations as regards teaching and supervision, any wishes and plans for further pedagogical development, plans for following up on student feedback/evaluations, etc. Personal reflections on your own pedagogical practice, including objectives, methods and implementation. This should include an analysis and a reasoned description of your pedagogical activities in relation to your pedagogical understanding and student learning. Thoughts on the teaching method at Aalborg University (which is largely based on group-organised project work and problem-based learning)

My pedagogical approach, besides the PBL and computing, inherits elements from

- Discovery/inquiry learning by Bruner,
- Experiential learning by Kolb,
- Embodied and Situated learning by Brown, Collins, Duguid, and Wenger,
- Constructivism by Vygotsky, Dewey, Rorty, Bruner, and Jonassen, and
- Problem-posing model of Paulo Freire in "Pedagogy of the Oppressed".

Evaluation of Teaching Competences and Assessment

Starting with the learning goals of the whole program, then individual courses or seminars, and derive the learning objectives of each individual session. In each session, I choose a method that aligns best with the objective, e.g., poster walks, prototypes, snowball group analysis, role playing, etc. I visualize the course progress, and monitor the workload of the students, by asking them at the beginning of each contact teaching session. I typically suggest further pointers and assignments to deepen the learning afterwards, during participants' own time.

For assessment I use question-based learning before and during the lecture (according to Freire, post-lecture questions are a form of oppression), together with Modle-based problems and collective assignments,

Other useful channels of feedback are the Semester Group Meetings and Semester Reports, albeit they introduce a time-gap and de-contextualization between the learning activity and its experience.

8. Any other information or comments.

Justification of my Teaching Style

While my artifact-based learning approach mobilize and engage the students, it is also not without challenges: the pace and timing need to be carefully adjusted, the topics should be simple, clearly described and at hand, and the constructed knowledge should be captured and made visible. These challenges require substantial time and effort for teaching development. However, these are justified when the students report that their learning is enhanced and they felt cared for. Then I feel satisfied to be a facilitator in their learning process.