

## Curriculum Vitae

PhD degree at Aalborg University 17 May 2017

Current position: Senior lecturer (Universitetslektor) in Electronics, especially engineering didactic, from 20190101, indefinite period

Previous: Lecturer (Universitetsadjunkt) in Electronics 2000-03-01 – 2018-12-31

## Fundings

Erasmus+ Strategic Partnership 2019-1-NO01-KA203-060257, 2019/09-2022/08, 166,500 EUR, FACE-IT – Fostering Awareness on program Contents in higher Education using IT-tools, with Damiano Varagnolo (NTNU, Norway), Steffi Knorn and André Teixeira

Pedagogic development project (PUMA), Uppsala University 2019/10 – 2020/03, 205.000 SEK– Knowledge ladders, with Steffi Knorn and André Teixeira

Development and enforcement of didactic research in STEM. Disciplinary Domain of Science and Technology Faculty board, Uppsala University, 350.000 SEK/year for three years, Main applicant and project leader for Steffi Knorn, André Teixeira and Tobias Wrigstad

Pedagogic development project (PUMA), Uppsala University 2018/10 – 2019/03, 141.000 SEK– Developing a concept inventory tool for engineering (CITE), with Steffi Knorn

TUFF grant, Uppsala University 2018, 165.000 SEK – Adaptation of education and examination from grading criteria and ambition, with Steffi Knorn. Presented at TUK (Teknisk-naturvetenskapliga fakultetens Universitetspedagogiska Konferens, Uppsala University) 2019

TUFF grant 2014, The student view on conceptual learning, motivation and awareness of his/her ability, 72.500 SEK. Presented at TUK 2015

TUFF grant 2012, Implementation of student-centered methods and how it affects the teacher's role in the classroom, 150.000 SEK. Presented at TUK 2013

## Other scientific merits and assignments

- Member of the board of MINT – Centre for Discipline-based Education Research at Uppsala University, 2019- ongoing
- The department representative for transition to the new learning platform Studium (Canvas) 2020
- Program chair member for IRSBL in San Sebastian, Spain, 2015

## Assessment assignments

2013 Excellent teacher promotion for Ulf Holmgren, Umeå University  
2013 Promotion to Senior lecturer for Alexander Dimitriev, Chalmers, Gothenburg  
2014 Lecturer/Senior lecturer in Biointerface and biomaterial science at Chalmers, Gothenburg  
2014 Senior lecturer in Fluid dynamics at Chalmers, Gothenburg  
2015 Assistant professor in Microwave electronics Chalmers, Gothenburg  
2015 Senior lecturer in Construction management Chalmers, Gothenburg  
2016 Promotion to Associate professor for Paul Erhart at Chalmers, Gothenburg

2016 Senior lecturer/Associate professor in Engineering education research at Chalmers, Gothenburg  
 2016 Associate professor in Antennas and Computational Electromagnetics at Chalmers, Gothenburg  
 2017 Associate professor in Driver behavior at Chalmers, Gothenburg  
 2017 Full Professor/Associate Professor in Compiler construction at Chalmers, Gothenburg  
 2018 "Teacher with merits" promotion for Sebastian Bader Mid Sweden University, Sundsvall  
 2019 Associate Professor in Computational Metabolomics at Chalmers, Gothenburg  
 2020 "Teacher with merits" promotion for Johan Björklund at University of Gävle  
 2020 "Teacher with merits" promotion for Leif Johansson at Umeå University

### Teaching experience undergraduate level – Course Director and Lecturer

- Electronics for F1 7,5 hp, 90 students (st) on one occasion
- Digital electronics F3 5 hp, 30 st on four occasions
- Electronics and circuit theory IT2 10 hp, 60 st on one occasion, and twice joint with Lars Ericsson
- Automation control and robot technique M2 10 hp, 50 st on four occasions
- Automation control EI2 5 hp, 30 st on three occasions
- Electronics E2+EI2 20 hp, 55 st on ten occasions
- Digital electronics, distance course 7,5 hp, 12 st on two occasions
- Analogue electronics F3 and F4 7,5 hp, 75 st on three occasions joint with Lars Ericsson
- Embedded systems IT2 and IT3 7,5 hp, 50 st on two occasions
- Microcomputers E2+EI2+E3 and EI3 7,5 hp, 45-50 st on two occasions
- Engineering didactic for teachers, Master level 7,5 hp, 6 st on one occasion
- Project management, Master level 15 hp, 30 st on one occasion
- Project course in electronics, available for all at all levels in Undergraduate studies 5 hp for eight years
- Introduction course E1, EI1 10 hp, 60 st on three occasions
- Math C and D, Preparation year, 30 st on one occasion

All courses in Swedish and me as the sole teacher except mentioned joints.

### Tutoring experience

Tutor in several project based courses as Independent project in Engineering Physics (1TE664) and supervisor on Bachelor and Master Theses, for example:

Independent Project in Electrical Engineering 15 hp (1TE708), August Tynong, Martin Hellkvist, Erik Persson, Josefine Bernberg: Camera-based autonomous driving system, 2016. TVE 16 068

Independent Project in Electrical Engineering 15 hp (1TE708), Joel Larsson, David Forsberg, Submarine fishing assistant, 2018. TVE-E 18 004

Master thesis in education and research 15 hp, Stefan Widström: Teknikämnets utveckling i GY11: En analys av läromedel och lärares planering av den nya kursen Teknik 1 utifrån kursmålen, 2012. DiVA, id: [diva2:509353](#)

Bachelor thesis in Electrical engineering 15 hp, Per Normann, Aspects of usage of spice-ware in the work of designing an electron tube amplifier, 2013. TVE 13 027

### Education

- Case as teaching method, Uppsala University (UU) 2019

- Supervision of PhD students, UU 2018
- Student centered learning and student-active education UU 2018, participant as well as one of the teachers
- Assessment of pedagogical ability and skills, Umeå University 2011
- Mentor training – Pedagogic leadership, UU 2010
- Master of Leadership, especially within the field of Education, UU 2006
- Master of Science in Scientific Subjects Education, UU 1989
- Engineering didactic course 2011 UU. Certificate missing but Arnold Pears was the Course director and I think he forgot to send out the Certificate. I reminded him but did not get an answer.

### Other pedagogic merits and awards

- Distinguished University teacher 2017
- Course coordinator for Signals & systems 2005-2006, 2008-2010 and 2017-
- 2014:s pedagogical prize from UTN, Uppsala Teknolog- och Naturvetarkår
- Pedagogic assessor (pedagogiskt sakkunnig) since 2011
- Pedagogical mentor at UU since 2010

Note: I have not formally passed pedagogical course for Higher education since Course Director Peter Reinholdsson considered me over qualified and convinced me to take the course to become a pedagogical mentor instead.

### Other scientific publications/reports

Adaptation of education and examination from grading criteria and ambition, with Steffi Knorn.

Presented at TUK (Teknisk-naturvetenskapliga fakultetens Universitetspedagogiska Konferens, Uppsala University) 2019

The student view on conceptual learning, motivation and awareness of his/her ability, Presented at TUK 2015 (as above)

Implementation of student-centered methods and how it affects the teacher's role in the classroom, Presented at TUK 2013 (as above)

### Assignments

2015-2017 Högskolen Innlandet Norway, Pedagogic expert:

- Evaluation and proposal of action plan for PhD student Tone Wold
- Development of campus for distance studies
- Member of a research team that evaluated study circles on a mission from The Nordic council of Ministers

Research leader and editor for the evaluation of Transformative Study Circles (TLC) contracted by the Nordic council of Ministers 2017

## Scientific work

### Doctoral thesis

K. Staffas, Developing requisite motivation in engineering studies: A study on a master and bachelor program in electronic engineering at Uppsala University (Doctoral dissertation, Aalborg Universitetsforlag), 2017.

### Papers in international scientific journals

D. Varagnolo, S. Knorn, K. Staffas, E. Fjällström and T. Wrigstad, "Graph-theoretic approaches and tools for quantitatively assessing curricula coherence", *European Journal of Engineering Education*, DOI: 10.1080/03043797.2019.1710465, 2020. Equal contribution

Knorn, S., Varagnolo, D., Staffas, K., Wrigstad, T., & Fjällström, E. (2019). Quantitative analysis of curricula coherence using directed graphs. *IFAC-PapersOnLine*, 52(9), 318-323. Equal contribution

K. Staffas, Heuristic for learning common emitter amplification with bipolar transistors. *European Journal of Engineering Education*, 42(6), 860-874, 2017. Included in my Doctoral thesis

### Scientific conference papers

K. Staffas and S. Knorn, "Adaptation of teaching and assessment to students' ambition levels", the 47<sup>th</sup> SEFI Annual conference 2019. Equal contribution

Fjällström, E., Forsberg, C., Trulsson, F., Knorn, S., Staffas, K., Varagnolo, D., & Wrigstad, T. (2019, June). Courses-Concepts-Graphs as a Tool to Measure the Importance of Concepts in University Programmes. In *2019 18th European Control Conference (ECC)* (pp. 3076-3083). IEEE. Equal contribution

Fjällström, E., Atta, K., Knorn, S., Sandin, F., Sas, G., Staffas, K., ... & Varagnolo, D. (2019). Creating a quantitative basis for course and program development in higher education-a report from field tests. In *7th Development Conference for Swedish Engineering Education, Luleå University of Technology, Sweden*. Equal contribution

K. Staffas, PEBL – A MODERN APPROACH TO HIGHER EDUCATION AND LEARNING, *EDULEARN18 Proceedings*, pp. 10171-10176, 2018.

Fjällström, E., Knorn, S., Staffas, K., & Varagnolo, D. (2018, September). Developing concept inventory tests for electrical engineering: extractable information, early results, and learned lessons. In *2018 UKACC 12th International Conference on Control (CONTROL)* (pp. 436-441). IEEE. Equal contribution

K. Staffas, Teaching and learning considerations for a research-intensive university implementing active learning. In *12th International CDIO Conference, Turku University of Applied Sciences, Finland, June 12-16, 2016*. Included in my Doctoral thesis

Staffas, K. (2015). Active learning in a deductive environment–what to consider to increase motivation and conceptual learning. *Exploring Teaching for Active Learning in Engineering Education DTU, Copenhagen, Denmark November 11-12 2015*, 24. Included in my Doctoral thesis

K. Staffas, Experiences from a change to student active teaching in a deductive environment: actions and reactions, in de Graaff, E., Guerra, A., Kolmos, A., & Arexolaleiba, N. A., *GLOBAL RESEARCH COMMUNITY: COLLABORATION AND DEVELOPMENTS*, 83-93, 2015. Included in my Doctoral thesis

## Books

K. Staffas (Ed.), Evaluation of Transformative Learning Circles: A learning model. Nordisk nätverk för vuxnas lärande, 2017.

## Chapters

Ndlela, M. N., Hole, Å. S., Slettli, V. K., Haave, H., Mei, X. Y., Lundesgaard, D., Hermanrud, I., Staffas, K. & Namdar, K.. Facilitation of Learning in Transformative Learning Circles: Enabling Entrepreneurial Mindsets Through Co-Creation of Knowledge. In *Creating Entrepreneurial Space: Talking Through Multi-Voices, Reflections on Emerging Debates* (pp. 73-93). Emerald Publishing Limited, 2019. Equal contribution

## Other Scientific publications and reports

- Poster sessions on the TUK conferences 2013, 2015 and 2019, see Fundings
- PUMA report 2019
- TUFF reports 2012, 2014 and 2018, see Fundings