

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 experiences:

- PhD course at AAU-ET (Denmark): Active Fault-Tolerant Control: Theory and Applications, 4 ECTS (5 days), organizer and teacher
- Graduate (Master-level) courses: Fault tolerant control (3rd semester); Offshore energy systems (2nd semester); fault detection and diagnosis (2nd semester); reliability modelling and analysis (2nd semester); robust and optimal control (2nd semester); Kalman filter theory (1st semester).
- Undergraduate (Bachelor-level) courses: probability, statistics and stochastic processes (6th semester); digital signal processing (5th semester); modern and digital control (5th semester); fundamental control theory (4th semester); discrete mathematics (4th semester); digital electronics (3rd semester).

Supervision experiences:

Pedagogic supervision of Assistant Professors (4):

- 1)Dr. Petar Durdevic Løhndorf, Aalborg University, Denmark, 2017-2018
- 2)Dr. Simon Pedersen, Aalborg University, Denmark, 2016-2017
- 3)Dr. Gerulf K. M. Pedersen, Aalborg University, Denmark, 2006-2008.
- 4)Dr. D. M. Akbar Hussain, Aalborg University, Denmark, 2005-2006.

PhD supervisions (11):

- 1)Mahsa Kashani, *Advanced Process Control Using AI-enhanced Sensor Fusion and Its Application in Offshore Produced Water Treatment*, 01.2022-12.2024, Dept. of Energy Technology, Aalborg University, Denmark
- 2)Stefan Jespersen, *Optimal Control of De-oiling Hydrocyclone Based on Online Oil-in-Water Sensor Fusion*, 09.2020-08.2023, Dept. of Energy Technology, Aalborg University, Denmark
- 3)Dennis S. Hansen, *Injection Water Quality Monitoring and Control*, 09.2017-03.2021, Dept. of Energy Technology, Aalborg University, Denmark
- 4)Mads V. Bram, *Grey-Box Modeling and Validation of Deoiling Hydrocyclones*, 09.2017-10.2020, Dept. of Energy Technology, Aalborg University, Denmark
- 5)Kasper Jepsen, *Modeling and control of membrane filtration systems for offshore produced water treatment*, 02.2016-03.2019, Dept. of Energy Technology, Aalborg University, Denmark
- 6)Leif Hansen, *Smart Water Treatment Systems – Produced Water Treatment (SWTS-PWT)*, 02.2016-12.2019, Dept. of Energy Technology, Aalborg University, Denmark
- 7)Petar Durdevic Løhndorf, *Plant-wide Separator and Hydrocyclone Control in Offshore Oil & Gas Production*, 10.2013-05.2017, Dept. of Energy Technology, Aalborg University, Denmark
- 8)Simon Pedersen, *Plant-wide Control of Slugging Flow in Offshore Oil & Gas Production*, 07.2013-06.2016, Dept. of Energy Technology, Aalborg University, Denmark
- 9)Zhen Sun, *Nonlinear System Identification and its Application to Fault Detection and Diagnosis*, 11.2008-10.2013, Dept. of Energy Technology, Aalborg University, Denmark
- 10)Qing Geng, *Networked control systems*, 10.2018-09.2019, guest PhD student from Yanshan University, China (CSC supported)
- 11)Hongbin Li, *Reliability analysis of fault tolerant control systems*, 09.2006-02.2007, guest PhD student from University of Alberta, Canada.

Supervision of M.Sc. students (over 100), names and thesis can be provided upon request.

Supervision of B.Sc. students (over 100), names and thesis can be provided upon request.

Assessment/exam committee experiences:

- PhD Assessment Committee (19) at AAU (DK), DTU (DK), NTNU (N), UAgder (N), CoventryU (UK). Names and thesis can be provided upon request.
- Danish External Examiner List (Ingeniøruddannelsernes Censorkorps): external censor for M.Sc. and B.Sc. exams at Danish universities (AU, DTU, SDU etc.)

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.

- Coordinator and academic evaluator for Master educational program of Offshore Energy Systems (OES), Aalborg University, 2012-
- Coordinator and academic evaluator for Master educational program of Reliable Intelligent Systems (IRS), Aalborg University, 2004-
- Master semester coordinator for OES3-4, IRS1-4, APEL3-4
- Bachelor semester coordinator for AIE5, EN4, ED3-7
- Representative of Dept. Electronic Systems in AAU Esbjerg Campus, 01.2009 -01.2011
- Member of AAU Esbjerg Campus Consultant Committee (Campusrådet), 01.2009 -01.2011
- Member of Study Board of Electronics and Information Technology (E-studienævnet), Aalborg University, 06.2005-05.2009

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

- Executive education - Pasteur Program: Leading the Virtual Company, Harvard Business School, Harvard University, USA, 08.2013-05.2014.
- Pedagogy for Assistant Professor (Adjunktpædagogikum), Aalborg University, Denmark, 2002-2003

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.

- Secretary of IEEE joint Danish Chapter of Control System Society (CS023) and Robotics and Automation Society (RA024), 2012- 2022
- NOC member for 14th IFAC Conference on Control Applications in Marine Systems, Robotics and Vehicles, Copenhagen, Denmark, September 14-16 2022.
- NOC Chair for 3rd IFAC Workshop on Automatic Control in Offshore Oil & Gas Production (OOGP2018), May 30 – June 01, 2018, Esbjerg, Denmark.

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.

- Lecture notes for different courses
- Actively participated in development & revision of new curriculum for bachelor and master of Energy Technology
- IRS program developer - "Development of an Interdisciplinary Education for Future Engineering Society - Intelligent Reliable System Program in Aalborg University", Zhenyu Yang, Gerulf K.M. Pedersen, Torben Rosenørn, Proc. of 36th European Society for Engineering Education (SEFI) on Quality Assessment, Employability & Innovation, Jul 2-5, 2008, Aalborg, Denmark.

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

- Teacher of the Year Spring 2012, Energy Study Board, School of Science and Engineering, Aalborg University, 2012

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)

Type your answer here...

8. Any other information or comments.

With 30+ year experience in research and development of control theory and automation technology, as well as their diverse industrial applications, he is still very eager and anxious to explore unorthodox and outrageous ideas and areas.