

Finn Aakre Haugen's Curriculum Vitae



Personal information

- **Gender:** Male.
- **Family:** Married. Five children.
- **Date and place of birth:** April 19, 1959. Bø, Telemark, Norway.
- **Home address:** Enggravhøgda 45, 3711 Skien, Norway.
- **Present positions:**
 - Docent at [University College of Southeast Norway](#) (Norwegian: Høgskolen i Sørøst-Norge)
 - Consultant (part-time) in mathematical modeling and control at VEAS wastewater treatment plant, Slemmestad, Norway.
 - Handyman at [TechTeach](#) (one-man firm)
- **Visiting address at work:** University College of Southeast Norway, Kjølnes ring 56, Porsgrunn, Norway.
- **Postal address at work:** University College of Southeast Norway, Faculty of Technology, P O Box 235, N-3603 Kongsberg, Norway.
- **E-mail address:** finn.haugen@hit.no.
- **Skype account:** finn.haugen@hit.no.
- **Mobile telephone:** +47 97019215
- **Personal home page:** <http://home.hit.no/~finnh>

Education

- Officer Candidate School (Befalsskole), 1978-79.
- MSc in Electrical Engineering/Engineering Cybernetics at the Norwegian Institute of Technology (present name: Norwegian University of Science and Technology), 1985.
- Technological Pedagogics (Pedagogisk utdanning for sivilingeniører), 30 ECTS, Norwegian Institute of Technology, 1985.

- PhD at Telemark University College, Norway, 2014. [Dissertation: Optimal design, operation and control of an anaerobic digestion reactor.](#)

Expert knowledge and skills

- Mathematical modeling
- Simulator development
- Automatic control
- State estimation
- Optimization
- Signal processing
- Biological processes, in particular anaerobic digestion for biogas production
- Programming in LabVIEW, Matlab and Simulink
- Teaching

Employments and duties

- **Research assistant** at Norwegian Institute of Technology, 1985 - 1992.
- **Instructor** of university courses at several university colleges in Norway, 1996-2009.
- **Self-employed** at [TechTeach](#) (one-man firm), 1996-.
- **Associate professor** (part-time) at the Department of Technology at Buskerud University College, 2008-2009.
- **Associate professor** at the Faculty of Technology, Telemark University College, 1992-2000, and 2003-. **Docent** at Telemark University College 2015. **Docent** at University College of Southeast Norway, 2016-.
- **Study coordinator** of online part-time master programmes in technology at University College of Southeast Norway.
- **Consultant** (part-time) in mathematical modeling and control at VEAS wastewater treatment plant, Slemmestad, Norway, 2015-.

Projects

- Modeling and control of a wood chip tank. (Matlab/Simulink.) Norske Skog, Tofte, Norway. 1996.
- Development of a supervision and control system for an experimental rig for fish research. (LabVIEW). Norwegian Agricultural University. 1999.
- Development of a supervision and control system for an experimental biological combustion rig. (LabVIEW.) Norwegian Agricultural University. 1999.
- Optimization of a temperature control system for a temperature calibrator. (Matlab/Simulink.) TEFT-project for Instrutek AS, Larvik, Norway. 1996-97.
- Modeling and simulation of a clutch servo system. Telemark University College and Kongsberg Automotive. (Matlab/Simulink, and LabVIEW). 2000.
- Consultancy (modeling, simulation and control). Ignis Photonix, Norway. 2005.
- Development of a logging program for an explosion rig. (LabVIEW.) Telemark University College. 2005.
- Development of a logging program for a process trainer. (LabVIEW.) Telemark University College. 2005.

- Development of a measurement and control system for a multiphase experimental rig (water, oil, air). (LabVIEW.) Norsk Hydro and Telemark University College. 2006.
- [Development of an educational process control trainer \(heated air tube\)](#). Telemark University College. (Cooperation with Eivind Fjelddalen.) 2006.
- Development of data acquisition and presentation system for powder pressure system. (LabVIEW.) Telemark University College. (Cooperation with Eivind Fjelddalen.) 2008.
- Development of measurement and control systems for three biogas reactors. (LabVIEW.) Telemark University College. (Cooperation with Eivind Fjelddalen.) 2008.
- Design and control of a test-rig for underwater lifting operations. Force Technology AS and MicoMarine AS. 2009.
- Development of an automatic test system. (LabVIEW.) Cody AS/ABB AS, Skien. 2008-2012.
- Development of a simulator with alternative control systems for a heave-compensation system for a company in Norway. (Confidentiality applies.) 2016.
- Development of a mathematical model and a simulator with a model-based predictive controller (MPC) and PI controller for the inflow system of the VEAS wastewater treatment plant in Slemmestad, Norway. 2016-.
- Development of a LabVIEW-based monitoring and control system for a biorefinery plant at Bygdø Kongsgård (King's Farm), Oslo. 2016-.
- Development of a LabVIEW-based dynamic simulator and consultancy about control of a hydraulic servo mechanism, Westcon AS, Norway. 2016-.

Simulators

- [SimView](#) - A collection of ready-to-run simulators for signals, systems and control.

Instructional videos

- [TechVids](#) - A collection of instructional videos about signals, systems and control.

Courses for industry

I have held a large number of courses for industry about automatic control:

- Open (external) courses, which are mainly offered through IKM Instrutek AS and Norsk forening for automatisering (NFA) (Norwegian Society of Automation).
- Internal courses, which are courses held for specific companies. Customers: National Oilwell Varco, Glava, Stabburet, Halliburton, GK Norge, Kongsberg Maritime, Kongsberg Defence and Aerospace, Bertil O. Steen, Triple-S (now Goodtech), Sevan Marine, Seatex, Statoil, Westcon, VEAS.

Typically, the courses have been based on short lectures combined with hands-on simulations using SimView simulators.

Publications

Text-books

- Anvendt reguleringsteknikk - [text-book](#) and [exercise book](#) (in Norwegian), Tapir Academic Publisher, 1990.
- Regulering av dynamiske systemer, bind 1 - [text-book](#) and [exercise book](#) (in Norwegian), Tapir Academic Publisher, 1994.
- Regulering av dynamiske systemer, bind 2 - [text-book](#) and [exercise book](#) (in Norwegian), Tapir Academic Publisher, 1996.
- Webprogrammering med JavaScript, PHP og MySQL (in Norwegian), Tapir Academic Publisher, 2003.
- Websideutvikling med HTML og CSS, (in Norwegian) Tapir Academic Publisher, 2003.
- Praktisk reguleringsteknikk - [text-book](#) and [exercise book](#) (in Norwegian), Tapir Academic Publisher, 2003
- Dynamiske systemer - [text-book](#) and [exercise book](#) (in Norwegian), Tapir Academic Publisher, 2003.
- Lær SIMULINK trinn for trinn (in Norwegian), Tapir Academic Publisher, 2003.
- Lær MATLAB trinn for trinn (in Norwegian), Tapir Academic Publisher, 2004.
- Basic Dynamics and Control - [text-book](#) and [exercise book](#), TechTeach, 2010.
- Advanced Dynamics and Control - [text-book](#) and [exercise book](#). TechTeach, 2010.
- Reguleringsteknikk (in Norwegian), 2. utgave, Fagbokforlaget, 2014. [Hjemmeside for 1. utgave](#).

Tutorials

- [Tutorials for MATLAB, SIMULINK, LabVIEW, Octave, Scicos, and Scilab](#)

Magazine articles

- [Reguleringsteknikk \(in Norwegian\)](#), a series of eight articles in AM-Nytt, 2007/2008/2009.
- [The Environmental Management System of Norway \(original\)](#). Printed. Chinese (printed). World Environment, China. 2016.

Scientific articles

- F. Haugen, E. Fjelddalen T. Edgar and R. Dunia. (2007). [Demonstrating PID Control Principles using an Air Heater and LabVIEW](#). *CACHE News* (Computer Aids for Chemical Engineering). Winter.
- R. Dunia, T. Edgar and F. Haugen. (2008). [A Complete Programming Framework for Process Control Education](#). 2nd IEEE Multi-conference on Systems and Control (MSC), San Antonio, Texas (USA).
- F. Haugen. [Control of a Buoyancy-Based Pilot Underwater Lifting Body](#). (2010). *Modeling, Identification and Control*, 31 (2).
- F. Haugen, W. Bergland, R. Bakke and B. Lie. (2010). [Hydrogen Control of an Experimental Anaerobic Biogas Reactor](#). Third International Symposium on Energy from Biomass and Waste, Venice, Nov. 2010.
- F. Haugen. [Comparing PI Tuning Methods in a Real Benchmark Temperature Control System](#). (2010). *Modeling, Identification and Control*, 31 (3).
- F. Haugen, R. Bakke and B. Lie. (2012). [State estimation of a pilot anaerobic digestion reactor](#). Nordic Process Control Workshop, Denmark

- F. Haugen. (2012). [The Good Gain method for simple experimental tuning of PI controllers](#). *Modeling, Identification and Control*, 33 (4).
- F. Haugen, R. Bakke and B. Lie. (2013). [Adapting dynamic mathematical models to a pilot anaerobic digestion reactor](#), *Modeling, Identification and Control*, 34 (2).
- F. Haugen and B. Lie. [Relaxed Ziegler-Nichols closed loop tuning of PI controllers](#). (2013). *Modeling, Identification and Control*, 34 (2).
- F. Haugen, R. Bakke and B. Lie. (2013). [Temperature Control of a Pilot Anaerobic Digestion Reactor](#). *Modeling, Identification and Control*, 34 (3).
- F. Haugen and B. Lie. (2013). [On-off and PID Control of Methane Gas Production of a Pilot Anaerobic Digestion Reactor](#). *Modeling, Identification and Control*, 34 (3).
- F. Haugen and K. E. Wolden. (2013). [A revised view on teaching basic process control](#), presented at [ACE2013 - the 10th IFAC Symposium on Advances in Control Education](#), Sheffield University, UK. Also available at <http://www.ifac-papersonline.net>.
- F. Haugen, R. Bakke and B. Lie. (2014). [State Estimation and Model-based Control of a Pilot Anaerobic Digestion Reactor](#). *Journal of Control Science and Engineering*, 14.
- PhD dissertation: [Optimal design, operation and control of an anaerobic digestion reactor](#). Telemark University College, Norway, 2014.
- F. Haugen, R. Bakke, B. Lie, K. Vasdal and J. Hovland. (2015). [Optimal Design and Operation of a UASB Reactor for Dairy Cattle Manure](#). *Computers and Electronics in Agriculture*, pp. 203-213, doi:10.1016/j.compag.2015.01.001.
- T. M. Komulainen, A. Alcocer, and F. A. Haugen. (2016). [Experiences and Trends in Control Education - A HiOA/USN Perspective](#). Eurosims, Oulu, Finland.

Presentations (selected)

- [Introduction to LabVIEW Control Design, System Identification and Simulation Tools](#). Presentation at NI Days, Drammen, Norway, 2005.
- [Control of Biogas Reactors](#). Servomøtet, Trondheim, Norway, 2015.
- [Online analyzer on a biogas reactor at VEAS](#). Driftsforum Biogass, Sola, Norway, 2016.
- [Introduksjon til faget Programmering og modellering](#) (video), Porsgrunn vgs, 2017.

Reviewer of scientific papers

I have served as a reviewer of several scientific articles for conferences. Due to confidentiality, these articles are not identified here.

Member of committees

- Member of the International Programme Committee (IPC) of the [11th IFAC Symposium on Advances in Control Education in Bratislava, Slovakia, June 1-3, 2016](#).

Assessment committees

- Administrator of the PhD assessment committee of Håkon Viumdal, Telemark University College (defence date: 6 February 2015). Thesis title: [Dynamic Estimators Using Laser and Ultrasonic Instrumentation for Determining the Metal and Bath Heights in Aluminium Electrolysis Cells – a Combination of Hard/Soft Sensor Approach](#).
- Administrator of the assessment committee, and third opponent, for PhD candidate

Anushka Perera, University College of Southeast Norway (planned defence date: 27 September 2016). Thesis title: State and Parameter Estimation of Complex Systems: Application to a Copper Production Process.

- Member of, including head of, several academic position application assessment committees. (Due to confidentiality, these assignments are not identified here.)

Supervisor of PhD candidates

- Co-supervisor of Magdalena Bruch, Norwegian University of Life Sciences. PhD project topic: Online analysis of anaerobic digestion reactors. 2015-.
- Co-supervisor of Laura Marcano, University College of Oslo and Akershus, Norway. PhD project title: Process Simulation and Learning Technologies. 2015-.
- Main supervisor of Shadi Attar, University College of Southeast Norway. PhD project title: Model-based monitoring and control of biogas reactors in wastewater treatment plants. 2016-.

Visits

- Presenting the Telemark University College master studies and giving guest lectures about modeling and simulation at four universities in Wuhan, China, 2007. [Travel report](#).
- Lecturing Process Control in master studies and giving industrial seminar on Process Control, Dept. of Chemical and Process Engineering, University of Moratuwa, Sri Lanka, 2010 and 2012. [Travel report](#) (from the 2010 visit).