Andreas Klausen

Curriculum Vitae

Education

2014–2019	**Ph. D. Mechatronics**, *University of Agder*, Grimstad. Condition monitoring of rolling element bearings during low and variable speed conditions.
2013–2015	**M. Sc. Mechatronics**, *University of Agder*, Grimstad. System Identification of a Variable Piston Pump and Design of a Hydraulic Load Circuit. Awarded best Master thesis of the year in Mechatronics.
2010–2013	**B. Sc. Mechatronics**, *University of Agder*, Grimstad. Dynamic Characteristics of a Brevini HPV41 with Open and Closed Internal Loop Regulations. Specialization in Marine Science.
2007–2010	**Specialization in General Studies**, *Vennesla Upper Secondary School*. Specialization in Science subjects.

Experience

2021–Present	**R&D Specialist**, *MotionTech*, Grimstad. Working on various projects involving machine vision, robotics and control
2019–2021	**Postdoctoral researcher, temporary**, *University of Agder*, Grimstad. Research within the field of intelligent monitoring, mainly focusing on diagnosis of rotating machinery. Teaching classes related to product development, machine learning, mobile robotics, automation, machine vision and signal processing.
2019	**Assistant professor, temporary**, *University of Agder*, Grimstad. Teached Industrial IT on the mechatronic master's education together with another colleague. I have been involved in a research project focusing on applying machine learning for condition monitoring. Also been investigating how artificial intelligence can be integrated into the mechatronics education.
2017–2020	**R&D Engineer**, *Red Rock Marine*, Sørlandsparken. 20% Part time R&D Engineer at Red Rock between Nov17-Jun20.
2015	**Summer Intern**, *MacGregor*, Kristiansand. During the summer, me and Sondre Sanden Tørdal reprogrammed the hydraulic test rig that was created during our master thesis project so that the employees at MacGregor could use it afterwards.
2014-2016	**Research Assistant**, *Tellefsdal, Inventas and University of Agder*, Grimstad/Fiane. Collaboration project regarding strain gauge testing of snow shoveling equipment to identify the magnitude of forces. During the project I instrumented, calibrated and tested the strain gauges using LabVIEW.
2014	**Summer Intern**, *MacGregor*, Kristiansand. During the summer intern, I started the development of a hydraulic test rig.
2013–2014	**Part Time Student Researcher**, *University of Agder*, Grimstad. The research work was aimed at mathematical modelling and simulation of vehicles during impact crashes. During my time in the project, I contributed to several scientific papers.
2013	**Summer Intern**, *MacGregor*, Kristiansand. During the summer intern, I introduced the company to automate several internal processes using Visual Basic in Microsoft Excel.

2011-2013	**Student Assistant**, *University of Agder*, Grimstad.
	Assistant in the following courses: Physics, Chemistry and Mathematics 3.
2011–2012	**Student Mentor**, *University of Agder*, Grimstad.
	Mentor in the following courses: Mathematics 2 and Control Theory.
2008–2012	**Summer Intern**, *Vennesla municipality*, Vennesla.
	During these summer jobs I mowed the lawn and helped maintaining the local football field, local parks, churches and graveyards.

Organization Work

2011–2013	**Voluntary Work**, *Bluebox*, Grimstad.
	Worked as a bartender serving guests with beverages, coffee and snacks.

Awards

2015	Most excellent Mechatronics Master thesis

Computer skills

Advanced	Python, Matlab, LaTeX, SimulationX, LabVIEW, Siemens TIA Portal, Siemes Simatic Step 7, SolidWorks and VBA
Basic	C#, C++ and Beckhoff Twincat

Communication Skills

2015	Held a crash course in Siemens PLC programming for mechatronic master students.
2014	Lectured an introductory course in Matlab's scripting environment and introduced the class to simple time domain simulations.

Languages

Norwegian	Native language
English	Excellent

Theses

Klausen, A. (2019). Condition monitoring of rolling element bearings during low and variable speed conditions. *Ph. D. thesis, University of Agder*.

Tørdal, S. S., & Klausen, A. (2015). System Identification of a Variable Piston Pump and Design of a Hydraulic Load Circuit. *Master thesis, University of Agder*.

Tørdal, S. S., & Klausen, A. (2013). Dynamic Characteristics of a Brevini HPV41 with Open and Closed Internal Loop Regulations (Norwegian title). *Bachelor thesis, University of Agder*.

Journal Papers

Hemmer, M., Klausen, A., Van Khang, H., Robbersmyr, K. G., & Waag, T. I. (2020). Health indicator for low-speed axial bearings using variational autoencoders. *IEEE Access*, *8*, 35842–35852.

Klausen, A., Khang, H. V., & Robbersmyr, K. G. (2020). Multi-band identification for enhancing bearing fault detection in variable speed conditions. *Mechanical Systems and Signal Processing*, *139*, 106422.

Hemmer, M., Klausen, A., Huynh, K., Robbersmyr, K. G., & Waag, T. I. (2019). Simulation-driven deep classification of bearing faults from raw vibration data. *International Journal of Prognostics and Health Management*.

Klausen, A., & Robbersmyr, K. G. (2019). Cross-correlation of whitened vibration signals for low-speed bearing diagnostics. *Mechanical Systems and Signal Processing*, *118*, 226–244.

Klausen, A., Folgerø, R. W., Robbersmyr, K. G., & Karimi, H. R. (2017). Accelerated bearing life-time test rig development for low speed data acquisition. *Modeling, Identification and Control*, *38*(3), 143–156.

Kandukuri, S. T., Klausen, A., Karimi, H. R., & Robbersmyr, K. G. (2016). A review of diagnostics and prognostics of low-speed machinery towards wind turbine farm-level health management. *Renewable and Sustainable Energy Reviews*, *53*, 697–708.

Tørdal, S. S., Klausen, A., & Bak, M. K. (2015). Experimental system identification and black box modeling of hydraulic directional control valve. *Modeling, Identification and Control*, *36*(4), 225–235.

Tordal, S. S., Klausen, A., Karimi, H. R., Robbersmyr, K. G., Jecmenica, M., & Melteig, O. (2015). An application of image processing in vehicle crash motion detection from high frame rate video. *International Journal of Innovative Computing, Information and Control*, *11*(5), 1667–1680.

Klausen, A., Tørdal, S. S., Karimi, H. R., Robbersmyr, K. G., Jecmenica, M., & Melteig, O. (2014). Firefly optimization and mathematical modeling of a vehicle crash test based on single-mass. *Journal of Applied Mathematics*, *2014*.

▬▬▬ Conference Papers

Jakobsen, M. M., Tørdal, S. S., Klausen, A., Robbersmyr, K. G., & Tyapin, I. (2021). Product development and project-based learning in mechatronics, in the context of digitization and sustainability. *Nordic Journal of STEM Education*, *5*(1).

Noorsumar., G., Rogovchenko., S., Robbersmyr., K., Vysochinskiy., D., & Klausen., A. (2021). A novel technique for modeling vehicle crash using lumped parameter models. *11th Int. Conf. on Simulation and Modeling Methodologies, Technologies and Applications*, 62–70.

Tørdal, S. S., Klausen, A., & Jakobsen, M. M. (2021). Case study: Employing agile tools in teaching product development to mechatronics students. *Nordic Journal of STEM Education*, *5*(1).

Husebø, A. B., Kandukuri, S. T., Klausen, A., & Robbersmyr, K. G. (2020). Rapid diagnosis of induction motor electrical faults using convolutional autoencoder feature extraction. *PHM Society European Conference*, *5*(1), 10.

Klausen, A., Kalaoja, J., Kandukuri, S. T., & Robbersmyr, K. G. (2020). Sensitivity analysis of online oil quality monitoring for early detection of water ingress in marine propulsion systems. *PHM Society European Conference*, *5*(1), 10.

Ismail, M. A. A., & Klausen, A. (2018). Multiple defect size estimation of rolling bearings using autonomous diagnosis and vibrational jerk. *7th World Conference on Structural Control and Monitoring*.

Kandukuri, S. T., Klausen, A., Khang Huynh, V., & Robbersmyr, K. G. (2018). Fault diagnostics of wind turbine electric pitch systems using sensor fusion approach. *Journal of Physics: Conference Series*, *1037*(3), 032036.

Klausen, A., Van Khang, H., & Robbersmyr, K. G. (2018). Novel threshold calculations for remaining useful lifetime estimation of rolling element bearings. *XIII International Conference on Electrical Machines (ICEM)*, 1912–1918.

Klausen, A., Robbersmyr, K. G., & Karimi, H. R. (2017). Autonomous bearing fault diagnosis method based on envelope spectrum. *IFAC-PapersOnLine*, *50*(1), 13378–13383.

Klausen, A., Tørdal, S. S., Karimi, H. R., Robbersmyr, K. G., Ječmenica, M., & Melteig, O. (2015). Mathematical modeling and numerical optimization of three vehicle crashes using a single-mass lumped parameter model. *24th International Technical Conference on the Enhanced Safety of Vehicles (ESV)*, (15-0168).

Altenborn, K. A., Klausen, A., Tørdal, S. S., & Karimi, H. R. (2014). Firefly optimization used to identify hysteresis parameter on rotational mr-damper. *International Conference on Mechatronics and Control*, 2302–2307.

Klausen, A., Tørdal, S. S., Karimi, H. R., Robbersmyr, K. G., Ječmenica, M., & Melteig, O. (2014). Mathematical modeling and optimization of a vehicle crash test based on a single-mass. *Proceeding of the 11th World Congress on Intelligent Control and Automation*, 3588–3593.

Tørdal, S. S., Klausen, A., Karimi, H. R., Robbersmyr, K. G., Ječmenica, M., & Melteig, O. (2014). On detection of yaw and roll angle information for vehicle oblique crash using hough transform. *Proceeding of the 11th World Congress on Intelligent Control and Automation*, 5951–5955.