Johan Öhman

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Curriculum Vitae

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Education

Luleå University of Technology
Ph.D. in Experimental Mechanics 2015–2020
- Thesis: "Polarization Resolved Particle Holography"

Luleå University of Technology
Civilingenjörsexamen (Master) in Engineering Physics and Electrical Engineering 2010–2015
- Thesis: "3D Localisation and Orientation of Micron Sized Particles Using Digital Holographic Measurements"

Experience

Predge AB
Analytics Developer November 2022-Current

Luleå University of Technology
Post-Doc in Experimental Mechanics November 2020-October 2022

Luleå University of Technology
Researcher in Experimental Mechanics June 2020-October 2020

Luleå University of Technology
Ph.D Student 2015-2020

Varius Summer jobs
At Telia, Skanova, Stadium, Postnord and Neava. 2009-2014

Skills

- **Analytics Skills :** Robust parameter estimation, Kalman filters, Autoencoders, CNN, Particle filters, Regression, Bayesian Methods, ARIMA, Markov Chains
- **Computer Skills :** SQL, Python, PyTorch, Scikit, Numpy, MATLAB, UNIX, LaTeX, GIT
- **Experimental Measurement Techniques:** Digital Holography (in-line and off-axis), IPI, PTV, Speckle Metrology, Ultrasonic Imaging, Laser Vibrometry, High Speed Imaging

Languages

- **Swedish:** Mother tongue
- **English:** Professional level

Professional Interests

- Inverse problems and machine learning methods
- Parameter estimation and forecasting
- Image and signal processing
- Optical metrology

Personal Interests

- Alpine and cross-country skiing
- Golf
- Computers and technology

Research Projects

I have been active in the following research projects:

New Replacement Policy Considering Environment ans Sustainability
Eureka clusters sustainability call 2022, SUS2022-039 NRPCES 2023-2026

Inverkan av munskydd vid luftburna pandemier från ett strömningsmekaniskt perspektiv
Vetenskapsrådet 2020-05871 2020-2021

FiDiMo - Standardized module for fish diagnostics
Energimyndigheten HåVa 50763-1 2020-2022

Flow of non-spherical particles: experimental arrangement
Vetenskapsrådet 621-2014-4906 2015-2020

Teaching

- **Teaching Assistant and Lecturer** at Luleå University of Technology 2021-2022
  Physics 2 (F0005T)
- **Teaching Assistant** at Luleå University of Technology 2016-2022
  Optics and Photonics (F0048T)
- **Teaching Assistant** at Luleå University of Technology 2016-2022
  Modern experimental metrology (F7037T)
- **Project Supervisor** at Luleå University of Technology Autumn 2019 and 2021
  Project in physical measurement and sensor systems (S7014E)

Other Experience

Ph.D representative in the faculty board 2016-2018
Work included strategic planing and evaluations of research and education.

Publications

[1] H. Lindström, **J. Öhman**, V. Meulenberg, R. Gnauert, C. Weimann, and W. Birk, "Feasibility of condition monitoring of belt splices in belt conveyor systems using iot devices*", *PHM Society European Conference*, vol. 8, no. 1, p. 7, Jun. 2024, ISSN: 2325-016X.

[2] V. Meulenberg, K. Moloukbashi Al-Kahwati, **J. Öhman**, W. Birk, and R. Nilsen, "Hazardous object detection in bulk material transport using video stream processing", in *International Congress and Workshop on Industrial AI and eMaintenance 2023*, U. Kumar, R. Karim, D. Galar, and R. Kour, Eds., Cham: Springer Nature Switzerland, 2024, pp. 531–543, ISBN: 978-3-031-39619-9.

[3] **J. Öhman**, W. Birk, and J. Westerberg, "Wheel damage prediction using wayside detector data for a cross-border operating fleet with irregular detector passage patterns", in *International Congress and Workshop on Industrial AI and eMaintenance 2023*, U. Kumar, R. Karim, D. Galar, and R. Kour, Eds., Cham: Springer Nature Switzerland, 2024, pp. 491–501, ISBN: 978-3-031-39619-9.

[4] **J. Öhman**, P. Gren, M. Sjödahl, and T. S. Lundström, "Experimental investigation of face mask filtration in the 15–150 m range for stationary flows", *Journal of Applied Physics*, vol. 131, no. 4, p. 044 702, 2022.

[5] R. Brännvall, **J. Öhman**, G. Kovács, and M. Liwicki, "Cross-encoded meta embedding towards transfer learning", in *28th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning*, 2020.

[6] M. Hedlund, C. Holmström, E. H. Deak, R. Olsson, M. Sjödahl, and **J. Öhman**, "Convolutional neural networks applied to inline particle holography", in *Imaging and Applied Optics Congress*, Optical Society of America, 2020, JW2A.15.

[7] **J. Öhman** and M. Sjödahl, "Identification and size estimation of non-spherical nanoparticles using polarization-resolved holography", in *Imaging and Applied Optics Congress*, Optical Society of America, 2020, HTh4H.8.

[8] **J. Öhman** and M. Sjödahl, "Identification, tracking, and sizing of nano-sized particles using dual-view polarization-resolved digital holography and t-matrix modeling", *Appl. Opt.*, vol. 59, no. 14, pp. 4548–4556, May 2020.

[9] **J. Öhman**, P. Gren, and M. Sjödahl, "Polarization resolved dual-view holographic system for investigation of microparticles", in *Digital Holography and Three-Dimensional Imaging 2019*, Optical Society of America, 2019, Th2A.5.

[10] **J. Öhman**, P. Gren, and M. Sjödahl, "Polarization-resolved dual-view holographic system for 3d inspection of scattering particles", *Appl. Opt.*, vol. 58, no. 34, G31–G40, Dec. 2019.

[11] **J. Öhman** and M. Sjödahl, "Improved particle position accuracy from off-axis holograms using a chebyshev model", *Appl. Opt.*, vol. 57, no. 1, A157–A163, Jan. 2018.

[12] **J. Öhman** and M. Sjödahl, "Axial particle positioning by wavefront parameterization using chebyshev polynomials and off-axis digital holography", in *Digital Holography and Three-Dimensional Imaging*, Optical Society of America, 2017, M4A.3.

[13] **J. Öhman** and M. Sjödahl, "Off-axis digital holographic particle positioning based on polarization-sensitive wavefront curvature estimation", *Appl. Opt.*, vol. 55, no. 27, pp. 7503–7510, Sep. 2016.

[14] B. Jiang, J. Carlson, M. Arranz, P. Lindblad, and **J. Öhman**, "Ultrasonic imaging through thin reverberating materials", in *Physics Procedia*, vol. 70, 2015.