

Personal Profile

Accomplished research scientist with extensive experience in imaging, image processing, and volumetric data analysis. With a PhD in Physics from the University of Jyväskylä, I develop computational tools for scientific imaging, particularly in X-ray tomography. My work focuses on automated image processing pipelines and integrating machine learning to enhance microscopy and tomography analysis. I specialize in image processing, reconstruction, and analysis for large-scale volumetric datasets.

Technical skills

Programming	Python 3 , C++ , C, MatLab, Java, MPI, OpenCL
Image Processing	NumPy , <code>std::vector</code> , ImageJ
Machine Learning	PyTorch , scikit-learn, XGBoost, TensorFlow
Technical reporting	L ^A T _E X, reveal.js

Experience

- 2021– **Independent Researcher**, *Rakta Network Oy*, Finland
- Offer consulting and software development services for mathematical and scientific applications, specializing in imaging, image processing, and analysis for large-scale volumetric data.
- 2018–2021 **Research Scientist**, *University of California*, San Francisco
- Provided computational support for internal and collaborative research projects at the National Center for X-ray Tomography.
 - Maintained and developed the automated image processing pipeline.
 - Integrated modern machine learning techniques into soft X-ray tomography
- 2016–2018 **Postdoctoral Scholar**, *University of California*, San Francisco
- Managed the image processing pipeline at the National Center for X-ray Tomography
 - Worked on transforming raw images into final volumetric representations for both fluorescence and X-ray microscopes, ensuring high-quality results for scientific analysis.
 - Developed and integrated a fully automatic alignment procedure into the image processing pipeline, reducing the time from acquisition to visualization from approximately 30 hours to 5 minutes.
- 2011–2016 **Doctoral Student**, *University of Jyväskylä*, Finland
- Conducted extensive theoretical and numerical research on random deposition networks, focusing on the impact of steric hindrance (physical obstruction) between constituents.
 - Demonstrated that steric hindrance significantly influences the contact formation and statistical properties of these networks, even in dilute systems.
 - Advanced the understanding of how physical obstructions impact the connectivity and formation of contacts in random fiber networks.
- 2010–2011 **Research associate**, *University of Jyväskylä*, Finland
- Utilized micro- and nano-scale X-ray CT to analyze paper and cardboard structures.
 - Developed and implemented quantitative analysis tools for 3D tomographic images.
 - Enhanced material characterization techniques through multidisciplinary collaboration.

Education

March 2016	Doctor of Philosophy in Physics , <i>University of Jyväskylä</i>
April 2011	Master of Science in Physics , <i>University of Jyväskylä</i>
April 2011	Bachelor of Science in Physics , <i>University of Jyväskylä</i>

Languages (CEFR)

Swedish	Native (C2)	Finnish	Native (C2)
English	Advanced (C1)	German	Elementary (A2)