

Aktuelle masteroppgaver for REALTEK studenter

Vår/høst 2024



Institutt/fagområde: Datavitenskap / Data Science

Subject area / study specialisation	Topic (optional)	Contact person
Data analysis, mathematics, programming	Low-rank neural networks for image segmentation	Jonas Kusch (from June 2023) Contact until then: Hans Ekkehard Plesser
	Efficient training for low-rank neural networks	
	Low-rank neural networks in Julia	
	Principle component analysis for treatment planning	
	Novel time update schemes	
	Principle component analysis for shallow water flows	
Scientific computing	Development and validation of an Advanced CIRCulation tidal flow model of the Oslofjord	Eirik Valseth (from January 2023) Contact until then: Hans Ekkehard Plesser
	Comparison of explicit and implicit time stepping schemes for shallow water flows	
	Development and validation of an adaptive hydraulics (ADH) model of the Oslofjord	
	Are simple ODE solvers suitable for simulation of spiking neuronal network models?	Hans Ekkehard Plesser (on leave Aug 2023–Jun 2024)
	Exploratory study: Can simulation technology for large-scale neuronal networks be applied to power grid simulation?	
	Reduced-order models and equations of state from molecular simulation	Martin Thomas Horsch
	Coupling and linking between molecular simulation and density-gradient based continuum methods	
	Efficient molecular simulation methods for vapour-liquid interfaces: a) Long-range and interfacial-orientation corrections; b) nanodroplets, nanobubbles, nucleation; c) interfacial fluctuations and transport properties	

Machine learning, data analysis	Metamodelling of cardiac models	Kristin Tøndel
	Metamodelling within computational neuroscience	
	Zero-Shot Learning (ZSL) applications: Aquaculture, material science, healthcare	Fadi Al Machot
	Few-Shot Learning (FSL): Aquaculture, material science, healthcare	
	Self supervised learning (SSL): Aquaculture, material science, healthcare	
	Healthcare data analysis using modern ML methods	Oliver Tomic (on leave Jan 2024 - Jun 2024)
	Development of ML methods for healthcare data analysis	
Computer vision, machine learning	Instance segmentation for industrial wear forecasting	Habib Ullah
	Fish data generation using Generative Adversarial Networks	
	Developing 3D model of udder for cattle phenotyping	
	Defective solar cells identification in electroluminescence imagery	
	Image based anomaly detection in production process	
Data management, knowledge representation	Mid-level ontology development	Martin Thomas Horsch
	Epistemic metadata for explainable AI	
	Metadata standards and good practices for FAIR agricultural data	
	Knowledge graph transformation systems for querying and ontology alignment	
Industry 5.0, process digitalization	Molecular modelling interoperability infrastructure	Martin Thomas Horsch
	Potential for digitalization-based improvements in battery cell manufacturing	
	Interfaces between electronic laboratory notebooks and research data infrastructures	
	Multicriteria optimization (MCO) for decision support systems (DSS): a) Bespoke quantitatively reliable model development; b) industrial decision support; c) integration of logical reasoning into MCO-based DSS	



Norges miljø- og
biovitenskapelige
universitet