

Master projects in
**Scientific Computing
and
Machine Learning**

The group members



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Geir Kjetil Sandve
Group leader

Research in the group

*Developing algorithms, software platforms
and machine learning methodology to solve
real-world problems*

*Solving problems on essentially any type of (complex) data that is not
images, language or robotics (for which IFI has separate groups)*

Research in the group

- Primarily focused on complex problems in life science (*both micro and macro level*)
 - Our DNA is a 3 billion long text recipe for our whole body - understanding health and disease requires fast algorithms and sophisticated machine learning
 - How does climate impact diseases like Malaria and how can we help countries anticipate and prepare for upcoming outbreaks (in collaboration with HISP)
 - How to model healthy heart functioning and detect abnormalities
 - Healthy aging
- Also applications beyond life science:
fairness in voting, detect money laundering

Research in the group

- Highly varied in the type of methodological work
 - Develop hardware-near algorithms
 - Develop new machine learning models
 - Benchmarking how well algorithms and machine learning works
 - Develop algorithms for simulating data to stress-test methodology
 - Develop machine learning software platforms

How master work feels like in the group

- It can feel challenging
 - We approach very complex real-world systems, and connect master work to the international research front
- It is highly collaborative
 - We set up multiple projects with deliberate connections, encourage sitting together, and have weekly joint master student meetings
- We expect engagement and a desire to learn and develop as programmers and data scientists
 - We see the master as an opportunity (for you) to hone your technical skills, self discipline and work strategies to succeed with a large, long-lasting task (!)

Some currently offered tasks

(Please contact us for a task tailored to your background and interest)

<u>Developing Machine learning methods for early warning of climate-sensitive disease</u>	12. aug. 2025	▪ <u>Geir Kjetil Ferkingstad Sandve,</u> ▪ <u>Sune Dueholm Müller</u>
<u>Prevent than cure – Healthy aging</u>	29. juli 2025	▪ <u>Pooya Zakeri,</u> ▪ <u>Hilde Loge Nilsen</u>
<u>Studying cardiac electrophysiology by combining supercomputing and physics-informed ML</u>	29. juli 2025	▪ <u>Xing Cai,</u> ▪ <u>James Trotter</u>