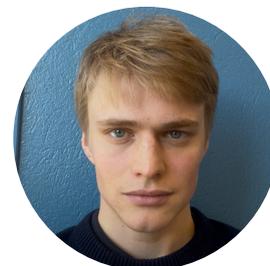


MATTIAS AKKE

NANOTECHNOLOGY AND APPLIED MATHEMATICS



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📍 Lund, Sweden

MSc.Eng. in Engineering Nanoscience and Applied Mathematics with expertise in AI for science, competitive programming, chemistry and linguistics. Interested in generative models for molecular structure and simulation. Physics Olympiad medalist, awarded best young European researcher in Biochemistry, and former chair of Sweden's largest organisation for programming and cybersecurity. Passionate about multi-scale problems by bridging research fields and driving impactful projects in multidisciplinary teams.

▷ EDUCATION

◇ **Lund University** *Aug 2020-Dec 2025)*
MSc.Eng. Engineering Nanoscience Programme
Specialisations: Mathematical Simulation, and Nano-BioMedicine GPA: 4.41/5 (years 1-3);
GPA 4.92/5 (years 4-5, master's-level coursework)

▷ LEADERSHIP & EXTRACURRICULAR

□ **Kodsport Sverige** *Chairperson (2021-2023)*
Sweden's largest programming and cybersecurity organization

□ **European Girls' Olympiad in Informatics 2023**
Founder, Logistics Officer (2021-2023)

□ **Unga Forskare** *Board Member (2020-2023)*
Sweden's largest non-profit to advance young peoples' interest in STEM

□ **F-Guild at LTH Student Union**
Corporate Contact & Head Caretaker (2021-2022)
Introduction organizer

▷ TEACHING EXPERIENCE

○ **Workshop for Nordic IMO Teams** *2025*
"Optimised learning for elite mathematicians"

○ **Kodsport Sverige** *2019 - Now*
Competitive programming workshops and competitions for high school and university students

○ **Ung Vetenskapssport** *2018 - Now*
Teaching at advanced mathematics workshops for high school students

▷ COMPUTER SKILLS

■ **ML:** PyTorch, TRL, Torchtune, Langgraph
■ **Languages:** Python, C++, Java, Matlab, Git, Bash, Slurm
■ **Simulation:** Gromacs, Plumed, Martini Coarse Grain

▷ RESEARCH & PUBLICATIONS

○ **MIT** *Jun 2025- Aug 2025*
Research Intern, Prof. Rafael Gómez-Bombarelli Group
"Bayesian Optimization for Biochemical Discovery with LLMs" – Presented at *NeurIPS 2025 Workshops*, Under review for *Nature MI*

○ **Politecnico di Torino** *Mar 2023 – Aug 2023*
Research Intern, Prof. Giovanni M. Pavan Group
"Multiscale Modelling of Supramolecular Assemblies of Light-Driven Molecular Motors" – *Poster at GRC Self-Assembly and Supramolecular Chemistry 2025*. Manuscript under final revision (target journal: *JCTC*)

○ **Lund University** *May 2022 – Dec 2022*
Research Assistant, Assoc. Prof. Adam Burke
Analyse nano-scale heat engines efficiency

○ **University of Cambridge** *May 2021 - Aug 2021*
Research Intern, Prof. Tuomas Knowles Group
Measure protein ion binding with microfluidics
Physics-informed NN for amyloids reaction networks

○ **Lund University** *2020 - 2021*
iGEM Team Member, Assoc. Prof. Johan S. Bonde
Generating anti-oomycete peptides with ensemble models

○ **Karolinska Institute** *2018*
Intern, Prof. Maria Issagouliants
HIV-1 immunogen T-cell response

▷ LANGUAGES

■ **Swedish:** Native Language ██████████
■ **English:** Fully Fluent ██████████
■ **Arabic:** Professional Knowledge ████████
■ **French:** Limited Knowledge ████████
■ **Italian:** Beginner ████████

▷ HONORS & AWARDS

- ★ **Stipendium Berzelianum** *Feb 2025*
Swedish Royal Academy of Science
- ★ **Bronze Medal** *Jul 2019*
50th International Physics Olympiad
- ★ **EIROForum Best Project Biochemistry** *Sep 2019*
European Union Competition for Young Scientists
- ★ **6th Place** *Mar 2019*
Swedish Programming Olympiad
- ★ **8th Place** *2019*
Swedish Cybersecurity Challenge
- ★ **iGEM Gold Medal** *Nov 2021*
Simulating Curli fibril growth
- ★ **iGEM Gold Medal** *Nov 2020*
Designing peptides with machine learning

▷ MILITARY SERVICE

- Mortar Command Post Group Leader (OR3) - Jun 2020

▷ PROFESSIONAL TRAINING

- DELF B2 French Certification - Jun 2019
- Data Scientist with Python - DataCamp Dec 2019
- Machine Learning Scientist with Python - DataCamp Jul 2020
- IELTS C2 English Certification - Oct 2025

▷ INTERESTS & ACTIVITIES

In my spare time, I do yoga, long-distance running, and rock climbing. I'm also active in community volunteering and educational outreach programs.

▷ WORK EXPERIENCE

- Tutor, Lund University (August 2021 – October 2021)
- Private Tutor in Mathematics and French (2018 – 2019)
- Climbing Coach, Skånes Klätterklubb (2017 - 2019)
- Chess Tutor, Lunds ASK (2015 – 2018)

▷ REFERENCES

Rafael Gómez-Bombarelli, MIT DMSE, rafagb@mit.edu, +1 617-253-5632 • **Giovanni M. Pavan**, Politecnico di Torino, giovanni.pavan@polito.it, +39 011090 8510 • **Tuomas Knowles**, Cambridge Chemistry, tpjk2@cam.ac.uk, +44 12 23 33 63 00 • **Adam Burke**, Lund Physics, adam.burke@ftf.lth.se, +46 46 222 79 30 • **Fredrik Niemelä**, Founder/International Olympiad in Informatics/International Cybersecurity Challenge, fredrik@niemela.se, +1 254-366-8333

Additional references and grade transcripts available upon request