

SIGFRID STJÄRNHOLM

Physics student & developer

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github.com/kladdy



CAREER SUMMARY

As a student at both gymnasial and University level, I have been engaged in various concils related to my studies. Working as a software consultant alongside my studies have yielded me great experience in how projects develop and has also allowed me to test the waters in a large variety of programming paradigms.

EDUCATION

Master's degree (Master's Programme in Physics) 2021 - Present

Uppsala University

A two-year programme at Uppsala University, specializing in the Nuclear and Particle Physics track. The programme reinforces the knowledge within fundamental physics, and with the course collection of mine I have chosen to put a lot of weight on the experimental aspect of particle physics.

Achievements:

- Student representative in the Programme Advisory Board for the Masters's Programme in Physics
- Recipient of the award 'Best student presentation' at The Student Conference in Science and Technology 2021
- Recipient of the scholarship Hallberg, Malin and Ivar, which is awarded to a 'talented student'

Selection of courses (so far):

Advanced Particle Physics **Accelerators and Detectors Classical Electrodynamics** Computer Programming II **Electric Measurement Techniques Industrial Management Quantum Field Theory Statistical Methods in Physics** Symmetry and Group Theory in Physics

Bachelor's degree (Bachelor's Programme in Physics) 2018 - 2021

Uppsala University

A three-year programme at Uppsala University covering a large portion the fundamental physics - from classical mechanics to advanced quantum physics. The programme also involves plenty of rigour in mathematics and a lot of programming.

Achievements:

- Student representative in the Programme Advisory Board for the Bachelor's Programme in Physics
- Vice Chairman in the Student Faculty Council for Physics students
- Recipient of three prices from the Mathematical Society at Uppsala University for distinctive performance in the courses Geometry and Calculus I, Geometry and Calculus III, and Fourier Analysis
- Recipient of Melanderhjelm's scholarship from the Faculty of Science and Technology at Uppsala University

Selection of courses:

Electromagnetic Field Theory Analytical Mechanics Complex Analysis Computer Programming I Electromagnetism Elementary Particle Physics Fourier Analysis Geometry and Calculus I, II & III Mathematical Methods of Physics Mathematical Statistics KF Linear Algebra II Mechanics KF & III **Medical Physics** Nuclear Physics Ordinary Differential Equations I Physics Project I & II Physics Project with a Research Basis Physics and Finance Quantum Mechanics **Quantum Physics** Scientific Computing KF & II Special Relativity **Thermodynamics Statistical Mechanics Waves and Optics**

Gymnasium (Natural Science Programme) 2015 - 2018

Björknäsgymnasiet

A three-year programme at Björknäsgymnasiet involving the natural sciences.

Achievements:

- Chairman in the Programme Advisory Board for the Natural Science Programme Chairman in the Student Council for Björknäsgymnasiet
- Scholarship from the Natural Science Programme for distinctive performance

competitor in the Nordic-Baltic Physics Olympiad (NBPhO)

- Attendee of a 2-week long internship at CERN (HSSIP) • Finalist in Wallenbergs fysikpris (Swedish national physics competition) and
- Attendee of Berzeliusdagarna, a weekend-seminar for students interested in chemistry
- Attendee of Rymdforskarskolan, a 2-week programme at Esrange space center

INTERESTS

- **p** Particle physics
- **Quantum physics**
- Nuclear physics
- **Simulations Experiments**
- Open-source

SKILLS & TOOLS

Software Python C# / C++ Node.js SQL HTML/CSS LaTeX Git Hardware Arduino Computer assembling Circuits

HOBBIES

Mountain hiking

Bread baking skiing

റ് Cycling

Computer hardware

ENGAGEMENTS

Banner carrier for Norrland's nation (Student association in Uppsala)

1 Test supervisor at the Swedish Scholastic Aptitude Test (Högskoleprovet, SweSAT)

Hometown ambassador for Uppsala University

WORK EXPERIENCE

Research assistant and teaching assistant 2021 - Present

Uppsala University

assistant at the Department of Physics and Astronomy at Uppsala University. I am involved within the Astroparticle Physics research group, coupled to the Division for High Energy Physics (HEP). I also work as a teacher assistant at the Department of Information Technology.

With a part-time employment during the Master's Programme, I work as a research

Involvements: Research tasks related to using neural networks to reconstruct neutrino properties

- from radio detector data. The work is to be used for an upcoming detector station at the South Pole called IceCube-Gen2 radio, and is a continuation of my bachelor's thesis. • Research regarding the use of wind generators and batteries that can handle the
- extreme cold at the South Pole. The tasks included measuring of generator losses, output voltages, as well as battery capacities. • Teaching assistant in Computer Programming II during spring 2022. The course was
- given in Python, and the tasks included correcting assignments and aiding students with the course material.

2016 - Present Jolix is an IT consulting company specializing in E-commerce applications. At Jolix, I have

Software consulting

JSON

Jolix AB

worked on plenty of projects within varying programming environments. The company also runs a small electronics store in Boden named pålyset.se, in which I have worked as a clerk. **Projects:**

Backend development of a checkout system for organizations using C#, Node.js &

- microservices Backend development of a message listener for IoT-devices reporting back to a
- central hub using Node.js • Integrating customers to a Storm API in C#
- Frontend development of a dashboard web application for E-commerce admins

Node.js

Technologies used:

CSS

Javascript/Typescript

HTML

.NET (4.5 & Core) Python Test-driven development

Unit testing Microservices React Redux Swagger

Event organizer Lise Meitner-dagarna 2019 - 2021 Lise Meitner-dagarna is a yearly weekend-seminar in Stockholm for high-school students interested in physics. During three intensive days, the students get to partake in laboratory

experiments, exhibitions and lectures by prominent physicists in a variety of fields. The

social media.

- organizing group consists of 4 members, and about 130 students from all over Sweden attend the event each year. **Roles:**
- Head of administration (2019 2020): Bookings for hotel, catering, and trips for the whole event. Managing registrations for schools, students, and exhibitors. • Head of communication and marketing (2021): Designs for mailings. Communication with schools and students. Upkeep of the website. Photography and