SIGFRID STJÄRNHOLM

Physics student & developer

Uppsala, Sweden

sigge.stjarnholm@gmail.com

linkedin.com/in/ssigfrid

github.com/kladdy

sigfrid.me

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)

Uppsala University

2021 - Present

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:

- Co-author of a paper published in Astroparticle Physics, and author of conference proceedings for two international conferences (ICRC 2021 and ARENA 2022)
- 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):

Accelerators and Detectors · Advanced Particle Physics · Automatic Control I · Classical Electrodynamics · Computer Programming II · Electric Measurement Techniques · Electronics I · Fluid Mechanics · Industrial Management · Quantum Field Theory · Solid Mechanics · Solid State Physics F · Statistical Methods in Physics · Symmetry and Group Theory in Physics

Bachelor's degree (Bachelor's Programme in Physics)

Uppsala University

2018 - 2021

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:

Analytical Mechanics · Complex Analysis · Computer Programming I · Electromagnetic Field Theory · Electromagnetism · Elementary Particle Physics · Fourier Analysis · Geometry and Calculus I, II & III · Linear Algebra II · Mathematical Methods of Physics · Mathematical Statistics KF · 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 · Statistical Mechanics · Thermodynamics · Waves and Optics

Gymnasium (Natural Science Programme)

Björknäsgymnasiet

2015 - 2018

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

WORK EXPERIENCE

Research assistant and teaching assistant

Uppsala University

2021 - Present

With a part-time employment during the Master's Programme, I have worked as a research 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 have also worked as a teacher assistant at the Department of Information Technology.

Involvements:

- Teacher assistant during fall 2022 in the course Application-Oriented Deep Learning in Physics, a course which introduces machine learning, deep learning, and neural networks with a focus on applications in physics.
- 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 was 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.

Software consulting

Jolix AB

2016 - Present

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

Technologies used:

.NET (4.5 & Core) · Python · Node.js · C# · HTML · CSS · Javascript/Typescript · Git · JSON · CI/CD · 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 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 social media.

INTERESTS

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

SKILLS & TOOLS

Software

Python

C# / C++

JS / TS / Node.js

SQL

HTML / CSS

LaTeX

Git

HTTP / DNS

Hardware

Arduino / Raspberry Pi

Computer assembling

Circuits

Other

Presentations · Giving speeches · Structuring work · Getting things done · Collaborative · Independent · Responsible

HOBBIES

- Mountain hiking
- Bread baking
- Skiing
- Cycling
- Computer hardware

ENGAGEMENTS

- Self-employed at Stjärnholm Consulting
- Banner carrier for Norrland's nation (Student association in Uppsala)
- Test supervisor at the Swedish Scholastic Aptitude Test (Högskoleprovet, SweSAT)
- Election worker at the 2022 Swedish general election
- Hometown ambassador for Uppsala University

STATISTICS

I have lived for 23 yr, 4 mo, 17 d, 11 h, 10 min, 1 s

I have donated 21 240 008 665 827 thrombocytes during 36 sessions