Curriculum Vitae for Alexander Fleischer

Personal information

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Born:	10.04.1991	Nationality:	Norwegian

Summary

I received my master's thesis in computational physics in 2018. The objective of the thesis was building a C++ and Python application for simulating quantum dots. As a programmer, I focus on writing clean, readable code with extensive testing. These are ideas I always try to bring into the projects I work on. From February 2018 to March 2020, I worked on two projects at the transit administration company Ruter. During both my studies and work career, I've always cultivated my programming skills. This has resulted in ten years of experience programming in Python.

Technical skills

Languages	Python, C/C++, Javascript, Java, Bash, Node, MATLAB, PHP
Frameworks	NumPy, Flask, FastAPI, Pandas, SQLAlchemy, Alembic, TensorFlow, Bokeh, PyPDF, Google OR-Tools, ReportLab, Unittest, pytest, React, Armadillo
Tools	Git, PostgreSQL, Unix, LaTeX, Docker, Heroku, CircleCI, AWS EC2/S3/VPC/RDS, MPI, Vim editor, PyCharm

Education

2018	M.Sc. Computational Physics from the Department of Physics at the University of Oslo. Title of thesis: "Monte Carlo Studies of Quantum Dots". Supervisor: Professor Morten Hjorth-Jensen.
2017	B.Sc. in Physics, University of Oslo.

Professional experience

2018–	Consultant at Expert Analytics
2015–2017	30 percent position as IT Support at the Department of Physics, University of Oslo
2013–2017	Course Leader at Forskerfabrikken Summer School
2013–2014	Private Tutor at Studenthjelp privatundervisning

Languages

Norwegian	Mother tongue
English	Fluent
Spanish	Basic
Dutch	Basic

Personal skills

Programming	I enjoy coding on and off the clock, and I am always interested in becoming a better programmer.
Quick learner	I like to learn, and do so quickly. In particular about programming and science.
Problem solving	The projects I've worked on as a consultant, previous work experience and my master thesis have all taught me to work independently and assess the task at hand.
Written communication	I like writing clear and concise texts. This ranges from popular science to documenting code.

Some interests and hobbies

Personal	Powerlifting, Football, Programming
Professional	Python programming, Data analysis

Extended descriptions of selected projects

Activity	Project at Ruter As
Period	February 2018—March 2020
Role	Developer
Staffing	1 developer

Description	I worked as a full-stack developer developing a Python backend and web app for an internal tool at Ruter. The tool is used to automatically generate production files (PDFs) that display relevant travel information for a given stop place, based on its metadata. This comprises timetables, maps, ticket information and so forth. The web app then lets a user easily generate such files for a set of stop places, which in turn can be printed and displayed physically on the stop place. In addition, I implemented a tool for generating optimal routes between stops using Google OR-Tools, as well as other scripts for the project.
Tools	Python, Flask, Javascript, PostgreSQL, Apache, Entur API, SQLAlchemy, PyPDF4, ReportLab, Alembic, Google OR-Tools, Google Maps API

Activity	Project at Ruter As
Period	February 2018—March 2020
Role	Developer/adviser
Staffing	3 developers, 1 team lead, 1 UX/UI designer
Description	We developed a content management system in the form of a web app for Ruter. In addition to some development (Node/React), I advised the team on the direction of the project, performed daily code review and contributed to sprint retrospects and planning.
Tools	Javascript/Node, React, PostgreSQL, AWS, Jenkins, Python

Activity	Slack bot
Staffing	1 developer
Description	I developed a slack bot for internal scheduling of social events. The backend is a fully functional REST API built with FastAPI in Python. Both the API and the PostgreSQL database are hosted on Heroku, using CircleCI for continuous deployment.
Tools	Python, FastAPI, PostgreSQL, SQLAlchemy, Pydantic, Slack API, Heroku, CircleCI, pytest, Alembic

Activity	Monte Carlo Studies of Quantum Dots
Staffing	2 researchers/developers
Description	For my master thesis, I developed software for simulating the ground-states of quantum dots ("fermions") using the variational Monte-Carlo method. The simulations were written in C++ while data analysis and visualizations were done in Python. I put a lot of effort and focus on unit testing and writing clean code.
Tools	C++, Python, Armadillo, MPI, NumPy, Matplotlib