Curriculum Vitae for Eivind Storm Aarnæs

Personal information

Address:	Maridalsveien 240 0467 Oslo	E-mail:	eivind@xal.no
		Phone:	+47 988 84 317
Born:	21.02.1991	Nationality:	Norwegian

Summary

I have a masters degree in Computational Science from the University of Oslo, completed in 2016. My project was about a particle system modeling linear elasticity, and accelerating linear algebra computations using GPUs. From my studies leading to this degree I have gained broad knowledge about algorithms, numerical mathematics, and programming in several languages.

Work experience prior to Expert Analytics includes mostly one-to-one teaching in a lab setting, but also as lecturing and live coding in plenary settings. I have also worked with testing—both manual and automated, and with Android development and some minor Javascript development.

Technical skills

Frameworks	OpenCL, Numpy and SciPy, Matplotlib, Boost.Python and Pybind11, PyTest
Languages	C/C++, Python, Java, TeX/LaTeX
Tools	Sphinx, Git, CMake, Vim editor, JetBrains IDEs (PyCharm, IntelliJ, and CLion)

Education

2011 – 2014	Bachelor Degree in Applied Mathematics at the University of Oslo.
2014 – 2016	Masters Degree in Computational Science at the University of Oslo. My thesis was titled *"Sparse Matrix Storage Schemes for a Linear System arising from a Discrete Model of Elasticity"*.

Professional experience

2017 –	Consultant at Expert Analytics AS.
2012 – 2015	Teaching Assistant at the University of Oslo in the course *"INF1100: Introduction the programming with scientific applications"*. Only the autumn semesters. Was responsible for a weekly programming lab. I also corrected assignments for my class.
2013 – 2014	Summer intern and contract software developer at Teleplan Globe AS. Prototyped an Android app for logging mobile network parameters, and identifying all the cell towers the device communicated with.
2014 – 2014	Teaching Assistant at the University of Oslo in the course *"INF1010: Object oriented programming"*. Only the spring semester. Shared responsibility for both reviewing the past weeks exercises in plenary for the entire course, and lecturing the pre-course for students with no prior knowledge in Java.
2013 – 2013	Teaching Assistant at the University of Oslo in the course *"INF1010: Object oriented programming"*. Only the spring semester. Was responsible for a weekly programming lab. I also corrected assignments for my class.
2012 – 2013	Summer intern at Teleplan Globe AS. Worked on testing web applications: both manually and by automating manual procedures.

Languages

English	Professional working proficiency
Norwegian	Native proficiency

Personal skills

Problem solving	I enjoy working on and finding solutions to non-obvious problems, and are able to see and work with strengths and weaknesses that may appear.
Reading Code	Through my work as a teaching assistant I have read and graded somewhere around 140 000 lines of code (Python/Java), and as a developer I have reviewed and provided feedback to both developers and specialists.
Technology	I have a large enthusiasm for learning and mastering anything within programming, technology, and science.

Extended descriptions of selected projects

Activity	Prototype IoT platform at Statkraft
Period	July 2019 —
Role	Developer
Staffing	3 developers
Volume	20%
Description	At Statkraft they need to monitor and collect diverse sensor data. To look into building their own IoT platform they are hosting a project to set up a prototype platform, and develop sensor nodes to collect operational data from a wind park. My role in the project is to design and build the sensor node, to implement communication between the node and the gateway using LoRaWAN, and interface the node with the sensor circuitry being developed in parallel.
Tools	ESP32, Arduino, ESP-IDF, and C/C++

Activity	Data collection, modelling, and analysis at Statkraft
Period	Aug. 2017 —
Role	Developer
Staffing	3 developers, 2 hydrologists
Volume	100% until June 2019, 80% from July 2019
Description	Statkraft is a major hydropower producer in Norway, and have need of stable and correct data. As part of updating their data frameworks they are hosting several projects for improving data collection and storage, and redesigning models and access layers. My role has been to develop interfaces and collection utilities for unstable data sources, design and implement a model of the network of sensor stations and nodes, and data analysis of hydrological/meterologial time series data.
Tools	Python, C++, Boost Python, Git, and Sphinx

Activity	The norwegian land register (NO: *"Matrikkelen"*) at Kartverket
Period	Apr. 2017 — May 2017
Role	Developer
Staffing	More than 10 developers
Volume	100%
Description	Kartverket develop and maintains the lad register software systems. The system has to be performant for changes, and to keep a full history of every change to the data. I have redesigned and implemented the algorithms for computing changes to land borders using a specialized depth-first graph search.
Tools	Java, Oracle SQL, Hibernate, IntelliJ IDEA, JIRA, Confluence, and Perforce

Activity	Region and Municipality reorganization (NO: *"Kommunereformen"*) at Kartverket

Period	Jan. 2017 — Apr. 2017
Role	Developer
Staffing	5 developers
Volume	100%
Description	Kartverket develop and maintains the lad register software systems. As part of the norwegian region and municipality reoragnization, the land register needs to perform huge number of changes in as short a time as possible. As such they need to implement specialized algorithms to be able to process the data in the available time frame. My part of the project has been to develop algorithms to automatically partition land data into sets of independent structures to enable parallel processing without dead-locking the database. Data dependence was defined by both logical and algorithmic constraints of the data transforms, and by database constraints. The partitioning was done using graph search and graph partitioning algorithms.
Tools	Java, Oracle SQL, Hibernate, IntelliJ IDEA, JIRA, Confluence, and Perforce

Activity	A C++/OpenCL library for sparse linear algebra
Period	Aug. 2015 — Dec. 2017
Role	Researcher and developer
Staffing	1 researcher
Volume	100%
Description	Developed as part of my masters degree at the University of Oslo. The library implements several different sparse matrix schemes and matrix-vector operations. Matrix-vector algorithms are implemented both serially, and parallel for GPUs using the OpenCL framework.
Tools	C++, OpenCL, Python, CMake, and Git

Activity	Prototype an Android app for logging mobile network parameters
Period	June 2013 — Aug. 2014
Role	Developer
Staffing	1 developer
Volume	June/July 2013 and 2014: 100%. Otherwise: 20%
Description	The project was to determine if an Android device coupled with proprietary data from the network operator could access enough parameters from the mobile network as to be usefull for logging network state and diagnosing network problems. To access enough parameters hidden Android APIs was accessed through reflection in addition to the public APIs available through the Android SDK. As the app used proprietary network data it was never meant for public use and is not available.
Tools	Android, Java, IntelliJ IDEA, Gradle, and Git