Curriculum Vitae for Ola Skavhaug

Personal information

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Born:	10 April	Nationality:	Norwegian

Summary

I am a skillful software architect, researcher, and project leader with more than 20 years professional experience. My main areas of technical expertise are mathematical and numerical software development, algorithm development, advanced scripting with modern scripting languages, parallel programming, software testing and deployment, library design, and scientific visualization.
In 2013, I founded Expert Analytics AS together with Åsmund Ødegård. Since then, my assignments have mostly involved writing simulation software and algorithms in hydrology that combine flexibility and numerical efficiency, and building frameworks for novel analysis of the behavoir of the North European hydropower markets.

Technical skills

Languages	Python, C, C++, Fortran, Javascript, Perl, Java, PHP, Bash, Tcl/Tk, Matlab, LaTeX, HTML, XML
Frameworks	Numpy, SciPy, Matplotlib, Bokeh, Flask, MPI, Swig, Boost, Stl, CGAL, Gdal, VTK, FEniCS, PETSc, SLEPc, Diffpack
Tools	Git, Mercurial, Subversion, CVS, Make, CMake, SCons, GCC, Autoconf, Linux

Education

2004	Dr. Scient in Computer Science, The Faculty of Mathematics and Natural Sciences, University of Oslo. Thesis' title: "Numerical Methods and Software with Applications in Computational Finance".
1996 – 1998	Cand. Scient in Computer Science, Department of Informatics, University of Oslo.

Professional experience

2013	Consultant, Expert Analytics AS
2011 – 2013	Innovation manager, Simula Innovation AS
2010 – 2011	Senior Scientific Programmer, Kalkulo AS
2007 – 2010	Research Scientist and head of the computational middleware software activity at the Centre of Biomedical Computing (CBC) at Simula Research Laboratory
2005 – 2007	Research Scientist and head of the project Software for PDEs at Simula Research Laboratory
2004 – 2005	IT-managet, Simula Research Laboratory
2004 – 2004	System Administrator, Simula Research Laboratory
2004 – 2011	20% Associate Professor, Department of Informatics, University of Oslo
2001 – 2004	Ph.D. Student at Simula Research Laboratory
2000 – 2004	20% Teaching Position at the Department of Informatics, University of Oslo
2000 – 2001	Ph.D. student at the Department of Informatics, University of Oslo

Languages

Norwegian	Mother tongue
English	Fluent
German	Basic

Personal skills

Management	Motivate and lead experts and PhD students, define and implement new projects, facilitate communication in informal surroundings to break up the work day.
Applied mathematics	Analyze, develop and implement complex algorithms in applied sciences, while balancing constraints like flexibility and efficiency. Short, agile development cycles with discussions and feedback from problem owners.

Some interests and hobbies

Physical	Telemark skiing, climbing, biking, yoga
Gastronomical	Beer brewing, cooking
Other	Reading, traveling, trekking, expeditions

Extended descriptions of selected projects

Activity	ADAM platform development
Role	Senior developer and architect
Staffing	Two main developers, and several analysts

Description	Analysts at Statkraft use the so called EMPS model to understand the long term behaviour of the North European power market. Although the core of this system is still solid and provides insights, the tools and workflows associated with it is dated at best. To fix this, Statkraft has started a project, ADAM, that augments the simulator with a powerful and flexible domain model written in a mixture of Python and C++. The platform both serves as a frontend to the analysts at Statkraft, enabling new ways of viewing results through domain specific transformations, and helps to manage the large amounts of data that is both used as input and produced as results by the EMPS simulator. My role in this project has been to define and implement the domain model together with the chief architect at Statkraft, and contribute to designe the architecture needed to meet the requirements on efficiency with regards to making the simulation results available to the analyst as soon as possible.
Tools	Python, HDF5, Bokeh, Matplotlib, EMPS model, Microsoft HPC Suite

Activity	Shyft development
Role	Senior developer and architect
Staffing	Four developers, several hydrologists
Description	Enki was an open source hydrologcal simulation platform developed by SINTEF for Statkraft over a time period of several years. The original implementation, being a proof of concept type research code, was not suited for daily use in an operational setting due to limitations on scalability, design and performance. I was hired in a project to remedy this, and we quickly realized that we needed to reimplement everything from scratch and use the existing code base as a starting point for the algorithmic aspects. The resulting hydrological forcasting toolbox, named Shyft, is currently operationalized and run daily at Statkraft and is used in research by several Norwegian research institutions. For more information about the project, see https://shyft.readthedocs.io/en/latest/ and https://shyft.readthedocs.io/en/latest/.
Tools	C++11, Stl, Swig, Boost, Python, Armadillo, dlib, yaml, Codeblocks

Activity	mCASH backend development
Role	Senior Python Developer
Staffing	12-15 Python developers

Description	In this project, I have been working on most parts of the backend of a new mobile payment system. This includes financial transaction handling, the internal bank implementation, messages emitted through various protocols based on recipients, OpenID Connect scopes implementation and payment for these, web handlers for endpoints, and Datastore transaction in the Google app engine, all in Python. I have also rewritten the instrumentation test framework, that does real life scenario, black box testing of the core system. The development is test driven, with tests covering close to 100 percent of the code base, follows the Scrum agile method, and utilizes state-of-the-art technologies like Git for version control, Nose for testing, and Sphinx for documentation.
Tools	Python, Google app engine, Git, buildout, nose tests, Sphinx, webapp2, Jinja2, OAuthLib, JSON, html, javascript, jQuery, Pusher

Activity	Computational Middleware, Center for Biomedical Computing
Role	Leader, scientist and software developer
Staffing	3-4 scientists and developers
Description	As a project leader, I had the responsibility of the technical development, scientific achievements, the economy, and the personnel in the project. The project strongly emphasized the development of reliable, extensible and numerical efficient software components for solving scientific problems through simulations.