Curriculum Vitae for Jonathan Feinberg

Personal information

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Born:	28.04.1984		

Summary

I am a specialist in probability theory, statistics and machine learning with heavy focus on numerical programming and practical applications. I am highly analytical in my thinking and can quickly break down open ended complex problems into solvable components. I am also well versed as a programmer, with expert level experience in the Python programming language.

Technical skills

Frameworks	Armadillo, GIS, Keras/Tensorflow, Matplotlib, NumPy/SciPy, Pandas, PyMC, Scikit-Learn, Statsmodels, XGBoost
Languages	Bash, C, C++, Latex, MATLAB, Python, R, RST/Markdown, Vimscript
Tools	CircleCI, Docker, Git, Linux, OSX, Regular Expression, Sphinx

Education

2015	Ph.D. in Mathematics from the Department of Mathematics, University of Oslo Thesis: "Some Improvements and Applications and Non-intrusive Polynomial Chaos Expansions" Supervisor: Professor Hans Petter Langtangen
2009	M.Sc. in Modelling and Data Analysis from the Department of Mathematics, University of Oslo Thesis: "Threshold Definition of Early Warning Systems to Natural Hazards" Supervisor: Professor Bent Natvig
2007	B.Sc. in Mathematics, Informatics and Technology, University of Oslo

Professional experience

2016 –	Consultant at Expert Analytics
2016 – 2018	Guest lecturer at the Department of Informatics, University of Oslo
2014 – 2015	Teaching Position at the Department of Informatics, University of Oslo
2014 – 2015	Private tutor at high school and undergraduate level at House of Math
2014 – 2015	Scientific Programmer for Simula Research Laboratory
2013 – 2014	Consultant at Kalkulo AS
2011 – 2014	Ph.D. student at Simula Research Laboratory
2009 – 2010	Research Assistant at Texas A&M University
2009 – 2009	Science Teacher at Smerud Medical Research
2008	Assistant Teacher at Department of Mathematics, University of Oslo
2007 – 2008	Student Ambassador at Public Relations and Events Office, University of Oslo
2007	Data Analyst at If P&C Insurance

Languages

English	Fluent
Norwegian	Mother tongue

Personal skills

Communication	Able to convey research and condensed knowledge into a presentable and explainable form. Extensive experience as university lecturer and teacher.
Planning	I am a "Problem solver", able to see strengths and weaknesses of proposed progress plans, grounded in fact-based thought.
Technology	Large enthusiasm for learning and mastering anything new within science, technology and programming.

Some interests and hobbies

Personal	Traveling, Gin tasting
Tech	Bayesian Statistics/Probabilistic Modelling, Open Source Software, Machine Learning, Global Optimization Algorithms, Python programming

Extended descriptions of selected projects

Activity	NEC Oncoimmunity
Role	Senior Developer and Data Scientist
Staffing	20 Developers/Data Scientists/Bioinformaticians

Description	OncoImmunity develop bioinformatics software that has the ability to empower precision cancer immunotherapy, and thus improves the outlook for patients with late-stage disease. My role is to develop machine-learning methods applied to genomic data for tumor immune profiling. The goal is to select optimal patients to be assigned to cancer immunotherapy clinical trials.
Tools	Python, Keras/Tensorflow, Numpy, Pandas, Scikit-learn, XGBoost

Activity	Statkraft
Role	Data Scientist
Staffing	3 developers
Description	Statkraft is a leading company in hydropower internationally, and Europe's largest generator of renewable energy. Our role was to explore the possibility of applying machine learning to parts of Statkraft's core business. In particular, we looked into various machine learning techniques that could be used to predict future market energy consume. The techniques included applying methods like statistical regression, time-series models, and artificial neural networks.
Tools	Python, Keras/Tensorflow, Scikit-learn, Statsmodels

Activity	Matlab to C++ converter
Role	Software developer
Staffing	2 developers
Description	As part of an EU sponsored project, Simula Research Laboratory and WesternGeco is collaborating to speed up the code translation step from Matlab to C++ using Armadillo. The approach involves creating a full parser that creates semi-automatic translations. I contributed as the developer of the parser, and the structure of translation.
Tools	Python, Armadillo, Sphinx

Activity	Chaospy – Uncertainty Quantification Toolbox
Role	Software Maintainer
Staffing	2 developers
Description	Chaospy is an actively maintained open source toolbox containing a large collection of uncertainty quantification tools. It also includes some state-of-the-art tools designed to reduce the computational budget in analysis. Chaospy is currently used as numerical engine in multiple research and development projects. `https://github.com/jonathf/chaospy`
Tools	Python, NumPy, SciPy

Activity	Numpoly – Multivariate polynomials as NumPy datatype
Role	Software Maintainer
Staffing	1 developer

Description	Numpoly is an open source library for creating, manipulating polynomial arrays. The library provides a subclass of `numpy.ndarray` implemented to represent polynomials as array element. As such it is fast and scales very well with the size of the coefficients, in addition to it being compatible with most `numpy` functionalities. `https://github.com/jonathf/numpoly`
Tools	Python, NumPy

Publications

Journal	Journal of Computational Science
Date	2015
Authors	J Feinberg, HP Langtangen
Title	Chaospy: An open source tool for designing methods of uncertainty quantification
DOI	https://doi.org/0.1016/j.jocs.2015.08.008

Journal	International journal for numerical methods in biomedical engineering
Date	2016
Authors	VG Eck, WP Donders, J Sturdy, J Feinberg, T Delhaas, LR Hellevik
Title	A guide to uncertainty quantification and sensitivity analysis for cardiovascular applications
DOI	https://doi.org/10.1002/cnm.2755

Journal	International journal for numerical methods in biomedical engineering
Date	2015
Authors	VG Eck, J Feinberg, HP Langtangen, LR Hellevik
Title	Stochastic sensitivity analysis for timing and amplitude of pressure waves in the arterial system
DOI	https://doi.org/10.1002/cnm.2711

Journal	SIAM Journal on Scientific Computing
Date	2018
Authors	J Feinberg, VG Eck, HP Langtangen
Title	Multivariate polynomial chaos expansions with dependent variables
DOI	https://doi.org/10.1137/15M1020447