

STEFAN R. MAETSCHKE

April 23, 2016

Address: 5/1-9 O'Connor Street
Melbourne, 3057, Australia
Nationality: German, Australian
Email: stefan.maetschke@gmail.com
Home page: <http://www.quuux.com/stefan>
Blog: <http://codeaffectionate.blogspot.com.au>

EXPERTISE & INTERESTS

Machine learning, Data analysis, Software development,
Computational biology, Image and Signal processing

PROJECTS & RESEARCH

Classification of TDR-signals (Ethernet) using neural networks

Evaluation of training algorithms for neural networks

Kinematic and dynamic **simulation** models of multi-axle robots

Adaptive torque **controller** for a Manutec **robot** using neural networks

Friction compensation and filter **optimization** for tooling machines

Welding spot **diagnosis** based on spot **image** and welding parameters

Sound and vibration based **diagnosis** of tiles and motors

Speaker, language and topic **identification** on audio signals

Promoter site **prediction** in prokaryotes using phylogenetic footprinting

Cleavage site **prediction** in signal peptides

Topology and localization **prediction** of transmembrane proteins

Binding site and protein function **prediction**

Inference of protein-protein interaction networks

(For details see <http://www.quuux.com/stefan/projects.html>)

SOFTWARE

Libraries for **Linear Algebra** and **Nonlinear Optimization** (C/Java)
Machine learning library for Support Vector Machines, Hidden Markov Models and Conditional Random Fields (Java)
Library for the analysis of **biological sequence data** (Java)
General purpose **machine learning** application (C++/MFC)
Image and signal based quality control system (C++/MFC)
Experimental system for **topic spotting** on sound (Java)
Workflow based **data mining** system for text (Swing/Java)
Description language for patterns in biological sequences (Java/XML)
Phylogenetic footprinting software for promoter site recognition (Java)
Localization **predictor** for transmembrane proteins (Java/JSP)
Browser for genomic sequence data (Swing/Java)
Predictor for protein-RNA interfaces (Python/Java/JSP)
Web application for the assessment of medical students (Python/Django/SQL)
Framework for the **statistical analysis** of stroke data (Python/Matplotlib/SQL)
Visual framework for **sequence analysis** (Python/Matplotlib/NumPy)
Predictor for protein-protein interaction networks (Scala/Jung2/BerkelyDB)
Several educational **mobile phone applications** (Java/Android)
Zoomable **presentation and coding software** (Scala/Swing/Piccolo/XML)
Semantic network and query language (Scala)
Spaced Repetition learning system (Scala/JavaFX)
Privacy protection **infrastructure** for Google Streetview (C++/Bigtable/MapReduce)

(For details see <http://www.quuux.com/stefan/projects.html>)

PATENTS

Determining the **orientation** of subject data in a two-dimensional data set (#6792139)
Method and apparatus for **signal segmentation** (#6771804)
System and method for **evaluating characteristics** for suitability in classification (#6484122)
Analysis of **weld image** to determine weld quality (#6414261)
Device designed to **compensate for non-linearity** of machine shafts (#5804940)
Defect identification in bodies consisting of brittle material (#20030167845)

PUBLICATIONS

Papers: 20+ publications in the field of Machine Learning and Computational Biology.
(See <http://www.quuux.com/stefan/publications.html> for a complete list)

Book: Computational protein localization prediction, VDM Verlag, ISBN: 3639137418

SUPERVISION

Supervision of undergraduate, postgraduate and PhD students,
Institute for Molecular Bioscience, Brisbane, AU

TEACHING

Programming in the Large and Advanced Software Engineering in Java,
University course at University of Queensland, Brisbane, AU

Regular **Python introduction** for biologists at Institute for Molecular Bioscience

Introduction to Scala at Institute for Molecular Bioscience

(For details see <http://www.quuux.com/stefan/slides.html>)

OTHER ACHIEVEMENTS

Dean's commendation for outstanding PhD thesis

Member of the **editorial board** of the Online Journal for Bioinformatics

Finalist Trailblazer 5 innovation competition

EDUCATION

2004 - 2007 **PhD in Computer Science**,
University of Queensland, Brisbane, AU

1986 - 1990 **MSc in Computer Science**,
University of applied science (Fachhochschule), Würzburg, DE

EMPLOYMENT HISTORY

- 2016 - today **Software Engineer**, IBM Research, Melbourne, Australia
- 2013 - 2016 **Software Engineer**, Google, Mountain View, US
- 2010 - 2013 **Research Officer**, Institute for Molecular Bioscience & Faculty of Health Sciences, Brisbane, Australia
- 2008 - 2010 **Research Officer**, Institute for Molecular Bioscience & **Associate Lecturer and Course Coordinator**, School of Information Technology and Electrical Engineering, Brisbane, AU
- 2007 - 2008 **Research Officer**, Institute for Molecular Bioscience, Brisbane, AU
- 2004 - 2007 **PhD Student & Research Assistant**, University of Queensland & Queensland University of Technology, Brisbane, AU
- 2001 - 2003 **Software Engineer**, MEDAV GmbH, Uttenreuth, DE
- 1994 - 2001 **Research & Development**, Siemens AG, Nuernberg, DE
- 1990 - 1994 **Research & Development**, Siemens AG, Erlangen, DE

COMPUTER SKILLS

Regression¹, Classification¹, Clustering¹, Optimization¹, Visualization¹, ANN¹, SVM¹, Feature selection², HMM², GMM²

Scala¹, Java¹, Python¹, C/C++², Matlab², R², Lisp⁴, Perl⁴, Fortran⁴, APL⁴

XML¹, HTML¹, CSS², SVG², L^AT_EX², JSP³, JDBC³, MySQL³, Django³

NumPy¹, matplotlib¹, MapReduce², scikit-learn², WEKA², LIBSVM³, JUNG³

Eclipse¹, IntelliJ¹, Visual Studio⁴, Subversion³, Mercurial³, Ant³

Windows³, Linux³, Android³

(0: guru, 1: extensive experience, 2: proficient, 3: working knowledge, 4: almost forgotten)

LANGUAGES

German (native speaker), **English** (fluent), Japanese (beginner)

REFERENCES

Available upon request.