DENNIS TIMMERS, PhD

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SUMMARY OF QUALIFICATIONS

- PhD and MSc in (Applied) Mathematics specialized in Probability and Statistics.
- Programming experience (Java, C#, object-oriented design).
- Implemented statistical and machine learning algorithms in R and Octave.
- Communication: extensive experience presenting to groups of 5 up to 80 people. Trained and evaluated fellow MSc/PhD students in teaching workshops.

EDUCATION

PhD Mathematics 2007 – 2012

- University of British Columbia, Vancouver, BC, Canada
- Probability Theory, Stochastic Processes and Statistical Physics
- Awarded a "Four Year Doctoral Fellowship" ($18.000 yearly + tuition fees)

BSc and MSc Industrial and Applied Mathematics 2001 – 2007

- University of Technology Eindhoven, The Netherlands
- Probability Theory, Statistics, Mathematical Modeling, Programming

WORK EXPERIENCE

Data Scientist, Metafor Software, Canada Jul '13 – current

- *Main project*: Develop a learning algorithm which is able to detect anomalous behavior in servers, computer clusters and applications.
- *Problem*: What is anomalous and normal behavior varies wildly (what is normal for one server is anomalous for an other server and vice versa).
- *Solution*: Created a learning algorithm which uses a training period to learn the normal behavior specific to the observed metric. After the warm-up period it has the ability to flag behavior which is anomalous for this specific metric.
- *Tools*: Combined non-parametric statistics with machine learning techniques and am currently testing the algorithm in R.
- *Other Projects*: Assisting in further developing a cohesiveness algorithm which, for example, is able to detect the servers in a cluster which behave abnormally in comparison with the overall behavior of the servers in the cluster.

Web analyst, Adversitement B.V., Netherlands Mar '07 – Aug '07

- *Main Project*: Develop a generic reporting framework which is able to automatically generate a KPI (Key Performance Indicators) dashboard based on the specific industry or objectives of the client.
- *Solution*: Analyzed the already available customized reports and searched through literature to build a large database of KPI's and categorize them.
- *Tools*: Built prototype graphical reports in Microsoft Excel and CSS, HTML, PHP.

PhD candidate, University of British Columbia, Canada Sep '07 – Dec '12

- Independently designed and conducted original research in the areas of probability theory and statistical physics.

- Adapted and combined several involved techniques to develop a novel method for proving liquid-gas phase transitions for systems of interacting particles.

Teaching assistant, University of British Columbia, Canada Sep '07 – Dec '12

- Facilitator: led weekly problem solving workshops. Promoted to a leading role where I trained and evaluated fellow teaching assistants.
- Instructor: held 22 lectures for 70+ students and weekly office hours to assist students. Developed lecture notes, weekly assignments and examinations.
- Tutor/marker: tutored and marked for stochastic processes and calculus.

ADDITIONAL TRAINING

Software Carpentry Boot Camp 22 – 23 May '12

The introductory boot camp covers core software skills: program construction, version control, python, testing, the command line, SQL, SQLite and relational databases. Short lessons alternate with hands-on practical sessions for two full days.

RELATED (VOLUNTEERING) PROJECTS

Volunteer web publisher, The Source, Vancouver, Canada Mar '13 – today

- Part of the publication team of the on-line version of The Source newspaper
- Member of the design team which is creating a new responsive Wordpres theme on a LAMP stack.

Volunteer research analyst, RESAAS Services Inc, Canada Feb '12 – Jul '12

- During PhD initiated contact with RESAAS to create a volunteer position.
- *Main Project*: Predict the future traffic patterns to RESAAS' website and, based on these predictions, estimate the future demand on the database.
- *Solution*: Created a statistical tool which predicts future traffic based on the historical traffic patterns. Developed a simulation model which take the future traffic patterns as input and quantifies the demand on the database by simulating user behavior.
- *Tools*: Used techniques from regression analysis and queuing systems to model and predict the traffic patterns. Developed a simulation computer program in C# which predicts the demand on the database.

MSc thesis project on wireless communications Jan '06 – Jan '07

- *Project*: The electrical engineering department built a simulation program with which they can evaluate the performance of a wireless network. The goal was to develop an algorithm to directly produce instances of the simulation program which result in a bad performance of the wireless network.
- *Solution*: Used a statistical classification algorithm called discriminant analysis to first classify instances by performance. Reverse engineered the classification algorithm produce instances of the simulation program at prescribed performance. The algorithm speeds up the simulation program by a factor of 5.
- *Tools*: Used SAS to analyze the data and for discriminant analysis. Then developed the algorithm in Mathematica.
- *Extra Funding*: Received additional funding from both the UBC and the University of Technology Eindhoven to publish and present the research project at the electrical engineering IEEE Globecom '07 conference in Washington DC.