Martinus (Martijn) Arnold de Jongh

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RESEARCH STATEMENT

I am fascinated by the research and development opportunities of machine learning applications. I have eight years of R&D experience with Bayesian networks and have two years of experience with discovery and visualization algorithms for social network analysis and recently worked on developing distributed algorithms for inference and learning of Bayesian networks on Hadoop clusters, which led to my Ph.D. dissertation.

EDUCATION

Decision Systems Laboratory, School of Information Sciences, September 2008 – April 2014
University of Pittsburgh Pittsburgh, PA
Ph.D. in Information Science
Advisor: Prof. Marek Druzdzel

Technische Universiteit Delft September 2003 - February 2007
M.Sc. in Computer Science Delft, The Netherlands
Media & Knowledge Engineering Track

Technische Hogeschool Rijswijk September 1999 - July 2003
B.Eng. (Cum Laude) in Electrical Engineering Rijswijk, The Netherlands
Major: Computer Engineering

TECHNICAL SKILLS

Programming Languages:	Hive, R, C, C++, PHP, SQL, CLIPS, Java, Python,,Matlab (Octave),Assembly, Javascript
Programming Libraries:	Zend, Boost, SMILE, OpenGL, Hadoop
Operating Systems:	Windows, OSX, Linux (Ubuntu)
General:	LaTeX, MS Visual Studio, GCC, Subversion,Git

WORK EXPERIENCE

Facebook May 2014-Current
Infrastructure Data Scientist

- Working on data analysis projects relevant to Facebook's Infrastructure Department

Facebook June-September 2013
Decision Support Data Analysis Intern

- I have spent the summer with Facebook's decision support team, working on two data analysis projects.

Leveraging Facebook's enormous data architecture with the use of Hive, I have worked on identifying the most significant factors for both projects and have built predictive models for each using R.

School of Information Sciences September 2008- April 2014
University of Pittsburgh Pittsburgh, PA
Graduate Student Researcher

- Worked on a DARPA funded research project (joint project with Boeing), developing a software library for inference and learning of Bayesian networks, including algorithm implementation for parallel computing using the MapReduce framework (Hadoop).
- Collaborating with University of Pittsburgh and Intel Corp. researchers on hybrid first-order logic/Bayesian network causal mechanism modeling and algorithm development. C++, Python.
- Worked on an NSF funded research project that investigates detection and visualization of latent communities in social networks; Implemented detection algorithms and visualization algorithms using C++, Java, Python and MySQL, Reported

periodically to the funding agency.

- Core member of the Decision Systems Laboratory (DSL). Duties include development (C++) and debugging of the lab's software for probabilistic modeling using Bayesian networks (SMILE / GeNIe); supporting users of our software.
- Working on research in the area of machine learning with a focus on Bayesian networks and causal discovery.
- Worked for the Association for Uncertainty in Artificial Intelligence (UAI) to digitize the complete proceedings of the UAI conference, maintain the UAI database and developing tools using PHP and MySQL to streamline the process.
- Worked as a teaching assistant for master courses "Human Information Processing," "Knowledge Representation and the Semantic Web," "Decision Analysis And Support Systems," undergraduate course "Introduction to Databases." Duties included Q&A after class, grading assignments and finals.

Technische Universiteit Delft April 2007 - August 2008
Associate Researcher Delft, The Netherlands

- Worked in the Man-Machine Interaction group on implementing and maintaining an inference engine based on dynamic Bayesian networks for speech recognition software in C++.

Decision Systems Laboratory, January 2006 - July 2006
University of Pittsburgh Pittsburgh, PA
Visiting Scholar

- Worked on designing and implementing a program in C++ for elicitation of probabilities for Bayesian networks, which lead to a MSc thesis and a publication in a conference.

PUBLICATIONS

- Denver Dash , Mark Voortman , Martijn de Jongh, "*Sequence of Mechanisms for Causal Reasoning in Artificial Intelligence*," to appear in the Proceedings of the Twenty-Third International Joint Conference on Artificial Intelligence (IJCAI), August 3-9, 2013, Beijing, China
- Patrick Dudas, Martijn de Jongh, Peter Brusilovsky, "*A Semi-Supervised Approach to Visualizing and Manipulating Overlapping Communities*," to appear in the Proceedings of the Seventeenth International Conference on Information Visualization (IV2013), July 15-18, 2013, London, UK
- Denver Dash, Mark Voortman, Martijn de Jongh, "*Why am I stuck? Causal Logic Models for Token-Level Causal Reasoning*," to appear in the Proceedings of the Approaches to Causal Structure Learning Workshop, UAI 2013, July 15th, 2013, Bellevue, WA
- Martijn de Jongh, Patrick Dudas, Peter Brusilovsky, "*Adaptive Visualization of Research Communities*," to appear in the Proceedings of the First International Workshop on User-Adaptive Visualization (WUAV2013), June 10, Rome, Italy
- Patrick Dudas, Jae-Wook Ahn, Martijn de Jongh & Peter Brusilovsky, "*Visualizing Overlapping Latent Communities Using POI-Based Visualizations*," iConference 2013, February 2013, Fort Worth, Texas.
- Martijn de Jongh and Marek Druzdzel, "*A Comparison of Structural Distance Measures for Causal Bayesian Network Models*," 17th International Conference on Intelligent Information Systems, June 2009, Krakow, Poland.
- Martinus de Jongh, Marek Druzdzel, Leon Rothkrantz, "*Implementing and Improving a Method for Non-Invasive Elicitation of Probabilities for Bayesian Networks*," CompSysTech '07, June 2007, Rousse, Bulgaria.
- Martinus de Jongh, "*Implementing and Improving a Method for Non-Invasive Elicitation of Probabilities for Bayesian Networks*," M.Sc. Thesis, February 2007, Delft, The Netherlands.

SUMMER SCHOOLS & CONFERENCES

- February 2013: iConference 2013, Forth Worth, Texas.
- August 2007: 16th International Summer School on Telecommunications, Lappeenranta, Finland.
- July 2007: Cyprus Summer School on Intelligent Systems, Nicosia, Cyprus.
- June 2007: CompSysTech'07 International Conference on Computer Systems and Technologies, Rousse, Bulgaria.

AWARDS & HONORS

- February 2012: Semi-Finalist of the Randall Family Big Idea Competition, entry: “Bayes Labs.”
- August 2007: Winner of Code Camp programming competition at the 16th International Summer School on Telecommunications, Lappeenranta, Finland.
- June 2007: Crystal Cube Prize for paper in the Ph.D. student category at the CompSysTech '07 International Conference on Computer Systems and Technologies, Rousse, Bulgaria.

LANGUAGES

- Dutch (native speaker), English (fluent), French (basic), German (basic)

REFERENCES ARE AVAILABLE ON REQUEST