Calvin McCarter

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Contact Information

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Education

Carnegie Mellon University, Pittsburgh, PA
Ph.D. in Machine Learning — **August 2013 - Present**
▷ Advisor: Seyoung Kim — GPA: 3.80/4.00

University of Michigan, Ann Arbor, MI
Bachelor of Science in Engineering — **August 2009 - May 2013**
▷ Major: Computer Science, Minor: Mathematics — GPA: 3.98/4.00

Research Experience

Carnegie Mellon University, Pittsburgh, PA
Machine Learning for Computational Genomics — **August 2013 - Present**
Working under the supervision of Seyoung Kim to develop sparse models and scalable optimization algorithms for tasks in computational genomics.

Van Andel Research Institute, Grand Rapids, MI
Cancer and Proteomics Research — **May 2013 - August 2013**
Worked under the supervision of Brian Haab to apply feature selection method to pancreatic cancer biomarker discovery and to validate method on proteomics database.

University of Michigan, Ann Arbor, MI
Electronic Design Automation Research — **January 2011 - July 2011**
Worked under the supervision of Valeria Bertacco and Debapriya Chatterjee to develop post-silicon validation method. Designed and implemented parallel algorithm in CUDA.

Ad Auctions Bidding Agent Research — **May 2010 - August 2010**
Analyzed data from simulated advertising auctions under the supervision of Michael Wellman to understand impact of bidding strategies on advertiser profitability.

Work Experience

Google, Mountain View, CA
Software Engineering Intern — **May 2012 - August 2012**
Worked on server backend for Google Flight Search, developing functionality to improve quality of results for live Flight Search queries.

Arbor Networks, Ann Arbor, MI — **May 2011 - August 2011**
Implemented instrumentation in deep packet inspection system and prepared performance analysis tools geared to IPv6 transition.

Awards

Outstanding Research Award, University of Michigan EECS Department, 2013
Henry Ford II Prize, University of Michigan College of Engineering, 2012
James B. Angell Scholar, University of Michigan, 2012
1st Place, Cooley Essay Writing Contest, University of Michigan, 2011
National Merit Scholar, 2009
Finalist, US National Chemistry Olympiad, 2009
National Champion, National Geographic Bee, 2002

Peer-Reviewed Publications

C. McCarter and S. Kim, "Large-Scale Optimization Algorithms for Sparse Conditional Gaussian Graphical Models", *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2016

C. McCarter and S. Kim, "On Sparse Gaussian Chain Graph Models", *Advances in Neural Information Processing Systems (NIPS)*, 2014

C. McCarter, D. Kletter, H. Tang, K. Partyka, Y. Ma, S. Singh, J. Yadav, M. Bern, B. Haab, "Prediction of Glycan Motifs Using Quantitative Analysis of Multi-lectin Binding", *Proteomics Clinical Applications*, vol: 7, issue: 9-10, 2013

D. Chatterjee, C. McCarter, V. Bertacco, "Simulation-based Signal Selection for State Restoration in Silicon Debug", *International Conference on Computer-Aided Design (ICCAD)*, 2011

Refereed Publications

S. Moon, C. McCarter, YH Kuo, "Active learning with partially featured data", *Proceedings of the 23rd International Conference on World Wide Web*, 2014

Invited Talks

Multi-modal Structure Learning in High Dimensions for Integrative Genomics. Machine Learning Lunch Seminar. Carnegie Mellon University, October 2015.

Teaching

Probabilistic Graphical Models (Teaching Assistant) — Spring 2016
Introduction to Machine Learning (Teaching Assistant) — Fall 2015

Activities and Professional Service

Pennsylvania Junior Academy of Science — **February 2015**
Middle school science fair judge.

ML Department Masters Admissions Committee — **January 2015**
Reviewed application materials of prospective Masters students.

Machine Learning Department Student Research Symposium — **November 2014**
Member of organizing committee. Helped plan symposium and created website.

CMU Language Technologies Institute Research Colloquium — **2013 - 2014**
Helped organize weekly research seminar as member of student planning committee.

English Language Institute Conversation Circle Program — **2011 - 2013**
Group leader of conversation circle for ESL students at University of Michigan.

University of Michigan Robocup (Robot Soccer) Team — **2009 - 2012**
Member and team leader (2010-2011). Developed computer vision subsystem.

Relevant Classes

Machine Learning, Probabilistic Graphical Models, Convex Optimization, Statistical Machine Learning, Hidden Markov Models, Foundations of Machine Learning Theory, Numerical Methods, Linear Algebra, Theoretical Statistics

Programming

Python, Matlab, C++, C, CUDA, Java, Shell scripting, LaTeX, SQL

Open-Source Software

MegaCGGM
Fast and scalable methods for estimating sparse conditional Gaussian graphical models.
`https://github.com/calvinmccarter/mega-cggm`