Collin Engstrom

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RESEARCH

My work focuses on creating machine learning models of genetic and EHR data for phenotype prediction. Specifically, I am interested in how existing techniques can be applied to whole genome data from individuals. These techniques are of interest in the context of personalized medicine.

TECHNICAL SKILLS

LANGUAGES
Java • C++ • C
Python • LaTeX

TOOLKITS
Weka • SVM-Light

RELEVANT COURSES

- Machine Learning
- Advanced Bioinformatics
- Artificial Intelligence
- Natural Language Processing

PEER REVIEWING

AAAI | 2016

LINKS

LinkedIn:// collin-engstrom

EDUCATION

UNIVERSITY OF WISCONSIN - MADISON | Madison, WI
PhD | Computer Sciences
December 2019
MS | Computer Sciences
September 10 - December 12

SOUTHWEST MINNESOTA STATE UNIVERSITY | Marshall, MN
BS | Computer Science, French (minor)
BA | Mathematics
August 06 - May 10
Summa Cum Laude • Honors Club • Math and Computer Science Club
Dean's List • Science, Mathematics & Computer Science Scholarship • Schwans Computer Science Scholarship

EXPERIENCE

UNIVERSITY OF WISCONSIN - MADISON | Madison, WI
Research Assistant | September 13 – Present
My research is with David Page and Brian Patterson and focuses on machine learning methods for health care and genetic data.
CS 540 (Co-)Lecturer | January 16 - May 16, September 17 - December 17
I held lectures, office hours, and review sessions. I also released or helped release homework assignments and oversaw grading done by TAs. I was also responsible for drafting, or helping draft, two exams and their grading rubrics.
Teaching Assistant | September 10 - May 13
I held discussion sections for one semester of calculus with review. Responsibilities included review of lecture material, grading, writing quizzes, and holding office hours. Other classes taught in subsequent semesters were operating systems and introductory programming, both of which consisted of grading and office hours.

SUMMER RESEARCH
Student Researcher at UC - Berkeley | June 09 – August 09
I developed a system to automatically correct floating point arithmetic errors in C code.

Student Researcher at UC - Santa Cruz | June 08 – August 08
I helped set up a wireless network testbed and designed software to monitor nodes in the network.

Student Researcher at USC - Columbia | June 07 – August 07
I investigated optimal transfer settings for wireless sensor networks.

SELECTED PUBLICATIONS

[1] Brian W Patterson, Collin J Engstrom, Varun Sah, Maureen A Smith, Eneida A Mendonça, Michael S Pulia, Michael D Repplinger, Azita G Hamedani, David Page, and Manish N Shah. Training and interpreting machine learning algorithms to evaluate fall risk after emergency department visits. *Medical care*, 57(7):560--566, 2019.

[2] Emily A Kringle, Evan C Knutson, Collin Engstrom, and Lauren Terhorst. Iterative processes: a review of semi-supervised machine learning in rehabilitation science. *Disability and Rehabilitation: Assistive Technology*, pages 1--6, 2019.

[3] Michael P. Schwartz, Zhonggang Hou, Nicholas E. Propson, Jue Zhang, Collin J. Engstrom, Vitor Santos Costa, Peng Jiang, Bao Kim Nguyen, Jennifer M. Bolin, William Daly, Yu Wang, Ron Stewart, C. David Page, William L. Murphy, and James A. Thomson. Human pluripotent stem cell-derived neural constructs for predicting neural toxicity. In *Proceedings of the National Academy of Sciences*, 2015.

[4] Ashok Anand, Aaron Gember-Jacobson, Collin Engstrom, and Aditya Akella. Design patterns for tunable and efficient ssd-based indexes. In *Proceedings of the tenth ACM/IEEE symposium on Architectures for networking and communications systems*, 2014.