Trevor Chan

Graduate Student Researcher - University of California, Davis

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Education

University of California, Davis
Davis, California

B.S. in Computer Science and Applied Mathematics — *Sep. 2012 - Mar. 2017*

University of California, Davis
Davis, California

Ph.D. in Computer Science — *Sep. 2017 - Present*

Skills

Technical

Programming Langauges: C, C++, R, Bash, Perl, SQL, HTML, PHP, CSS, Python, MATLAB
Machine Learning: Tensorflow, Keras
Other: Microsoft Office, Adobe Photoshop, Latex

Spoken Languages

Fluent: English, Cantonese
Proficient: Spanish, Italian
Basic: Russian, Mandarin

Research Experience

Transfer Learning for Omics Prediction - Machine Learning Research
Davis, California

UC Davis Bioengineering Department — *May. 2017 - Present*

- Ongoing work using transfer learning to optimize prediction across two omics datasets, one for *E. coli* and the other for *Salmonella Enterica*

Joke Prediction - Machine Learning Research
Davis, California

UC Davis Computer Science Department — *Mar. 2017 - Present*

- Ongoing work on joke prediction with a variety of machine learning models (ANN, RF, SVR)
- Carefully modeled a joke dataset and obtained ratings for it using Amazon's Mechanical Turk service

Text Analysis, a Fields Medalist Case Study - NLP Research
Davis, California

UC Davis Mathematics Department — *Jun. 2015 - Mar. 2016*

- Wrote software to find the most important words/concepts to an author given a set of mathematical papers via LASSO and centrality methods.
- Compared the results of both the network centrality and convex optimization methods. This case study helped to give an idea of the benefits and shortcomings of each method.

Percolation on the Hamming Square - Probabilistic Combinatorics Research
Davis, California

UC Davis Mathematics Department — *Oct. 2015 - Sep. 2016*

- Classified different types of zero sets and studied neighborhood growth on the Hamming plane.
- Implemented programs to simulate neighborhood growth and find upper and lower percolation bounds on given zero sets.

Simulating the Aging Process - Bioinformatics Research
Berkeley, California

Lawrence Berkeley National Laboratory Center for Research and Education on Aging (CREA) — *Jun. 2015 - Mar. 2017*

- Helped to design a simulator for the processes of the human body.
- Implemented an ODE solver using a modified Runge-Kutta method in OpenCL after extensive numerical analysis research into the optimization of current methods.
- Used Gurobi and C++ to write software that optimized simulation runtimes.

Folding RNA Secondary Structure - Biological Optimization Research

Davis, California

UC Davis Computer Science Department

Jun. 2014 - Aug. 2015

- Studied the Nussinov and Four-Russians optimization methods and implemented them with respect to the problem of RNA secondary single strand sequencing.
- Created a new way to use Four-Russians optimization on the problem of RNA-RNA secondary strand interactions.

Stable Marriage Problem, a TA Case Study - Optimization Research

Davis, California

UC Davis Mathematics Department

Jun. 2014 - Jul. 2015

- Worked on a variation of the stable marriage problem: the problem of matching TAs to course sections each school quarter.
- Created an integer programming model and then implemented this model in SCIP.
- Designed a website so that faculty can manage course info and create matchings of TAs to sections each quarter within a matter of minutes.

Social Choice and Voting Systems - Matrix Completion Research

Davis, California

UC Davis Mathematics Department

Jul. 2013 - Sep. 2013

- Worked on integer programming and matrix completion problems via convex optimization and singular value thresholding algorithms.
- Studied and implemented a variety of voting methods: Massey, Colley, Borda Count, etc.
- Compared the French runoff voting method to that of the Kemeny voting method in a case study to find out which yielded a more ”fair” outcome.

Publications

Math Majors Using Math to Help Math Departments: Two Models for Assigning Teaching Assistants to Courses

Minnesota Journal of Undergraduate Mathematics (MJUM)

Authors: S. Asher, **T. Chan**, J. deLoera

Neighborhood growth on the Hamming plane: bounds on extremal quantities (pending)

Authors: **T. Chan**, G. Gordon, J.E. Paguyo, J. Gravner

Honors & Awards

2017	**Graduation with Honors**, University Honors Program	*Davis, California*
2017	**Outstanding Senior in Applied Mathematics**, UC Davis Mathematics Department	*Davis, California*
2017	**Mathematics Departmental Citation**, UC Davis Mathematics Department	*Davis, California*
2017	**Undergraduate Thesis Distinction**, UC Davis Mathematics Department	*Davis, California*

Hobbies & Interests

Argentine Tango - Instructor

Davis, California

Davis Joint Unified School District - Davis Adult School

Sep. 2014 - Jan. 2015

Financial Mathematics - Instructor

Davis, California

UC Davis Mathematics Department

Jan. 2013 - Mar. 2013

Other Interests:

Brazilian Jujitsu, Chess, Jazz Piano, Swimming