

THOMAS TU
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EDUCATION

Ph.D. in Applied Mathematics **Los Angeles, CA**
University of California, Los Angeles **August 2016 – present**
Research interests include subgraph isomorphism, randomized iterative linear system solvers, knowledge graphs, machine learning, and optimization.

M.A. in Applied Mathematics **Los Angeles, CA**
University of California, Los Angeles **August 2016 – June 2018**

B.S. in Applied Mathematics and Computer Science, Physics Minor **Newark, NJ**
New Jersey Institute of Technology **September 2012 - June 2016**
Awarded full-tuition scholarships based on merit; graduated from Albert Dorman Honors College.

PUBLICATIONS

Thomas K. Tu, Jacob D. Moorman, Dominic Yang, Qinyi Chen, Andrea Bertozzi, "Inexact Attributed Subgraph Matching." Proc. GTA³ 4.0: The 4th Workshop on Graph Techniques for Adversarial Activity Analytics, IEEE International Conference on Big Data, Atlanta, GA, Dec. 2020 (to appear)

Thomas K. Tu, Dominic Yang, "Fault-tolerant Subgraph Matching on Aligned Networks." Proc. GTA³ 4.0: The 4th Workshop on Graph Techniques for Adversarial Activity Analytics, IEEE International Conference on Big Data, Atlanta, GA, Dec. 2020 (to appear)

Jacob D. Moorman, **Thomas K. Tu**, Denali Molitor, Deanna Needell, "Randomized Kaczmarz with Averaging." BIT Numerical Mathematics, Aug. 2020.

Jacob D. Moorman, **Thomas K. Tu**, Denali Molitor, Deanna Needell, "Randomized Kaczmarz with Averaging." Proc. Information Theory and Applications Workshop, La Jolla, CA, Feb. 2019.

Jacob D. Moorman, Qinyi Chen, **Thomas K. Tu**, Zachary M. Boyd, Andrea L. Bertozzi, "Filtering Methods for Subgraph Matching on Multiplex Networks." Proc. GTA³ 2.0: The 2nd workshop on Graph Techniques for Adversarial Activity Analytics, IEEE International Conference on Big Data, Seattle, WA, Dec. 2018.

PREPRINTS

Jacob D. Moorman, Qinyi Chen, **Thomas K. Tu**, Zachary M. Boyd, Andrea L. Bertozzi, "The Subgraph Matching Problem on Multiplex Networks." Submitted Feb. 2020.

WORK EXPERIENCE

Graduate Student Researcher **Los Angeles, CA**
University of California, Los Angeles **June 2018 – present**
Researched subgraph isomorphism methods under Dr. Andrea Bertozzi for the DARPA-MAA program. Assistant mentor to undergraduate participants in the 2018 UCLA CAM REU program.

Graduate Student Teaching Assistant **Los Angeles, CA**
University of California, Los Angeles **Sept. 2016 – Dec. 2018**
Led weekly discussions and held office hours for undergraduate courses in numerical analysis and computer programming for Python, C++, and Web development.

Research Intern **Malibu, CA**
HRL Laboratories, LLC **June 2019 – Jan 2020**
Developed and tested mathematically provable safe controllers for autonomous vehicles using formal methods and differential dynamic logic.

Data Science Consultant **Los Angeles, CA**
Neural Analytics **April 2017 – March 2018**
Designed and implemented software for data-driven dynamic robotic control of trans-cranial Doppler ultrasound probes.

Software Development Intern **New York, NY**
Trillium Labs **January 2015 – May 2016**
Worked on Surveyor, a market manipulation detection tool for automated compliance. Designed and implemented algorithms for analyzing market book and print data to detect anomalous trading patterns. Analyzed Twitter data using sentiment analysis to identify and predict stock market trends.

Undergraduate Researcher **Newark, NJ**
New Jersey Institute of Technology **January 2014 - December 2014**
Researched algorithms for optimal control in uncertain velocity fields under Dr. Richard Moore. Part of the NSF's EXTREEMS-QED mathematics research program.

TECHNICAL SKILLS

- Java
- Python
- C++
- MySQL
- Android
- JavaScript
- jQuery
- Node.js
- MEAN
- PHP
- SVN
- Git
- Spring MVC
- NumPy, SciPy
- KeymaeraX

Github: <https://github.com/EphesosX/>