Christopher Tran

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https://christran16.github.io/

Ph.D, Computer Science, University of Illinois at Chicago

Research

My research lies in the space of machine learning and causal inference, with a focus on heterogeneous treatment effect estimation: how treatment affects individuals differently. I am particularly interested in applications of my work in social science and personalized privacy assistants.

Education

Ph.D., Computer Science
Advised by Dr. Elena Zheleva
Department of Computer Science, University of Illinois at Chicago *Aug 2016 - Aug 2022*

M.S., Computer Science
Department of Computer Science, University of Illinois at Chicago *Aug 2016 - Dec 2020*

B.S., Computer Science
Department of Computer Science, Delaware State University *Aug 2012 - May 2016*

B.S., Mathematics
Department of Mathematical Sciences, Delaware State University *Aug 2012 - May 2016*

Publications

C. Tran, K., Burghardt, K. Lerman, E. Zheleva, "Data-Driven Estimation of Heterogeneous Treatment Effects" [PDF]

C. Tran, E. Zheleva, "Improving Data-driven Heterogeneous Treatment Effect Estimation Under Structure Uncertainty." *To be published in ACM SIGKDD Conference on Knowledge Discovery and Data Mining, KDD 2022.* [PDF]

C. Tran, E. Zheleva, "Heterogeneous Peer Effects in the Linear Threshold Model." *Proceedings of the 2022 AAAI Conference on Artificial Intelligence, AAAI 2022.* [PDF]

Y. He, **C. Tran**, J. Jiang, K. Burghardt, E. Ferrara, E. Zheleva, K. Lerman. "Heterogeneous Effects of Software Patches in a Multiplayer Online Battle Arena Game," *16th International Conference on the Foundations of Digital Games, FDG 2021.* [PDF]

M. T. Khan, **C. Tran**, S. Singh, D. Vasilkov, C. Kanich, B. Ur, E. Zheleva. "Helping Users Automatically Find and Manage Sensitive, Expendable Files in Cloud Storage," *30th USENIX Security Symposium, USENIX 2021.* [PDF].

C. Tran, E. Zheleva. "Heterogeneous Threshold Estimation for Linear Threshold Modeling." *International Workshop on Mining and Learning with Graphs, MLG 2020*, Contributed Talk. [PDF].

M. Roshanaei, **C. Tran**, S. Morelli, C. Caragea, E. Zheleva. "Paths to Empathy: Heterogeneous Effects of Reading Personal Stories Online." *IEEE Conference on Data Science and Advanced Analytics, DSAA 2019.* [PDF].

M. Mondal, G. Yilmaz, N. Hirsch, M. T. Khan, M. Tang, **C. Tran**, C. Kanich, B. Ur, E. Zheleva, "Moving Beyond Set-It-And-Forget-It Privacy Settings on Social Media." *26th ACM Conference on Computer and Communications Security, CCS 2019.* [PDF].

C. Tran, E. Zheleva, "Learning Triggers for Heterogeneous Treatment Effects." *Proceedings of the 2019 AAAI Conference on Artificial Intelligence, AAAI 2019.* [PDF] [Code].

Experience

Researcher
Smart Information Flow Technologies (SIFT) *July 2022 - Present*
- Developed and implemented algorithms for detecting novelties in different domains
- Conducted data visualization and processing to analyze data sets and identify patterns and trends
- Worked on evaluating the performance of human and machine classifiers
- Utilized various data science tools and techniques such as regression analysis, clustering, and classification to extract insights from data.
- Conducted data cleaning and preprocessing to ensure data quality and accuracy for analysis.
- Performed statistical tests and hypothesis tests to extract conclusions from data.

Research Intern
Smart Information Flow Technologies (SIFT) *May 2019 - Nov 2019*
- Conducted research to model and identify factors contributing to gender bias in different countries.
- Investigated swarm agent behaviors and developed models to better understand and predict their collective behavior patterns.
- Explored and implemented novel approaches for document recommendations, leveraging machine learning and social network algorithms

AI Intern
STATS Perform *May 2018 - Aug 2018*
- Developed and implemented models to predict ball ownership and trajectory using raw tracking data from basketball games
- Utilized deep recurrent neural networks and feature engineering techniques to optimize model performance and accuracy.

Research Assistant
University of Illinois at Chicago *Aug 2017 - May 2022*
- Conducted research on causal inference to better understand and identify cause-and-effect relationships in complex systems and datasets.
- Investigated and developed models to analyze heterogeneous treatment effects, accounting for individual differences and factors that influence outcomes.
- Explored and identified triggers for heterogeneous treatment effects - variables that maximize an estimated effect.
- Conducted extensive literature reviews and stayed up-to-date with the latest research and advancements in related fields.

Teaching Assistant
University of Illinois at Chicago
Introduction to Machine Learning (CS 412) *Fall 2018, Spring 2021*
Instructor: Dr. Elena Zheleva
- Editing and creating new additions for homework assignments, grading homework and exams, answering questions on Piazza, holding regularly scheduled office hours

Mathematical Foundations of Computing (CS 151) *Spring 2017, Fall 2017, Spring 2018*
Instructors: Dr. John Lillis, Dr. Gonzalo Bello
- Holding multiple lab sessions per week, grading homework and exams, answering questions on Piazza, holding regularly scheduled office hours

Program Design II (CS 141) *Summer 2017*
Instructor: Dr. John Lillis
- Grading homework and exams, assisting during lab and class sessions, holding regularly scheduled office hours

Introduction to C/C++ with MATLAB (CS 109) *Fall 2016*
Instructor: Dr. John Bell
- Leading multiple lab sessions per week, grading homework and exams, answering questions on Piazza, holding regularly scheduled office hours

Service and Awards

Conference reviewer

- AAAI conference on Artificial Intelligence (AAAI) (2021)
- The Web Conference (2021)
- International Conference on Web Search and Data Mining (WSDM) (2021)
- SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) (2020)

Awards

- UIC College of Engineering Graduate Student Award for Exceptional Research Promise (2021)
- UIC Computer Science Graduate Student Award (2016)