IAN CONNICK COVERT
Curriculum Vitae

Paul G. Allen School of Computer Science & Engineering

University of Washington

Seattle, WA, 98195

Email: icovert@cs.washington.edu

Web: iancovert.com

EDUCATION

University of Washington, Seattle, WA

Ph.D. in Computer Science, March 2023 (Expected)

Advisor: Su-In Lee

Columbia University, New York, NY

B.A. in Math/Statistics, B.A. in Computer Science, 2017

Summa Cum Laude, Phi Beta Kappa

French American International High School, San Francisco, CA

International Baccalaureate Diploma (Bilingual in French), 2013

INDUSTRY EXPERIENCE

Citadel Securities, Quantitative Research Intern   June 2022-August 2022

Options alpha research.

Google Brain, Student Researcher   June 2018-March 2019

Interpretable, topologically-aware deep learning for EEG seizure detection.

Goldman Sachs, Investment Banking Strategist Summer Analyst   June 2016-August 2016

Credit risk pricing for interest rate derivatives; equity capital markets.

Société Générale, Investment Banking Summer Analyst   June 2015-August 2015

Interest rates derivatives pricing.

TEACHING

Co-Instructor, [CSEP590 Explainable AI](), University of Washington   Spring 2022
Taught with: Su-In Lee
Designed course contents (syllabus, slides and homework) and delivered lectures.

Teaching Assistant, EE578 Convex Optimization, University of Washington   Winter 2019
Professor: Maryam Fazel
Taught review sessions and several lectures, wrote exam questions, graded assignments.

PUBLICATIONS AND PREPRINTS

Ian Covert, Wei Qiu, Mingyu Lu, Nayoon Kim, Nathan White, Su-In Lee. "Learning to Maximize Mutual Information for Dynamic Feature Selection." Preprint, 2023.

Ian Covert*, Chanwoo Kim*, Su-In Lee. "Learning to Estimate Shapley Values with Vision Transformers." International Conference on Learning Representations (ICLR), 2023.

Hugh Chen*, **Ian Covert***, Scott Lundberg, Su-In Lee. "Algorithms to Estimate Shapley Value Feature Attributions." Nature Machine Intelligence, 2023 (accepted in principle).

Ian Covert, Rohan Gala, Tim Wang, Karel Svoboda, Uygar Sümbül, Su-In Lee. "Predictive and Robust Gene Selection for Spatial Transcriptomics." Nature Communications, 2023 (accepted in principle),

Neil Jethani*, Mukund Sudarshan*, **Ian Covert***, Su-In Lee, Rajesh Ranganath. "FastSHAP: Real-Time Shapley Value Estimation." International Conference on Learning Representations (ICLR), 2022.

Ian Covert, Scott Lundberg, Su-In Lee. "Explaining by Removing: A Unified Framework for Model Explanation." Journal of Machine Learning Research (JMLR), 2021.

Ivan Evtimov, **Ian Covert**, Aditya Kusupati, Tadayoshi Kohno. "Disrupting Model Training with Adversarial Shortcuts." Adversarial ML Workshop, ICML 2021.

Ian Covert, Su-In Lee. "Improving KernelSHAP: Practical Shapley Value Estimation via Linear Regression." Artificial Intelligence and Statistics (AISTATS), 2021.

Alex Tank*, **Ian Covert***, Nicholas Foti, Ali Shojaie, Emily Fox. "Neural Granger Causality." Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2021.

Ian Covert, Scott Lundberg, Su-In Lee. "Feature Removal Is A Unifying Principle For Model Explanation Methods." Machine Learning Retrospectives, Surveys & Meta-Analyses (ML-RSA) Workshop, NeurIPS 2020.

Ian Covert, Scott Lundberg, Su-In Lee. "Understanding Global Feature Contributions With Additive Importance Measures." Neural Information Processing Systems (NeurIPS), 2020.

Ian Covert, Uygar Sümbül, Su-In Lee. "Deep Unsupervised Feature Selection." Preprint, 2019.

Ian Covert, Scott Lundberg, Su-In Lee. "Shapley Feature Utility." Machine Learning in Computational Biology (MLCB), 2019.

Ian Covert, Uygar Sümbül, Su-In Lee. "Principal Genes Selection." Machine Learning in Computational Biology (MLCB), 2019.

Ian Covert, Balu Krishnan, Imad Njam, Jiening Zhan, Matthew Shore, John Hixson, Ming Jack Po. "Temporal Graph Convolutional Networks for Automatic Seizure Detection." Machine Learning for Healthcare (MLHC), 2019.

Jiening Zhan, Hector Yee, **Ian Covert**, Jiang Wu, Albee Ling, Matthew Shore, Eric Teasley, Rebecca Davies, Tiffany Kung, Justin Tansuwan, John Hixson and Ming Jack Po. "EEG Seizure Detection via Deep Neural Networks: Application and Interpretation." Machine Learning for Health Workshop (ML4H), NeurIPS 2018.

Alex Tank, **Ian Covert**, Nicholas Foti, Ali Shojaie, Emily Fox. "An Interpretable and Sparse Neural Network Model for Nonlinear Granger Causality Discovery." Time Series Workshop (TSW), NeurIPS 2017.

AWARDS

- Top reviewer at ICML (2020, 2021), ICLR (2021, 2022), NeurIPS (2021, 2022)
- Upton Fellowship, Princeton University, 2017
- Computer Science Excellence Fellowship, UIUC, 2017
- Computer Science Faculty First Year Fellowship, UMass Amherst, 2017
- Summa Cum Laude, Columbia University, 2017
- Phi Beta Kappa, Columbia University, 2017
- Computer Science Award for Academic Excellence, Columbia University, 2017

INVITED TALKS

- Morgan Stanley, October 2022
- Citadel Securities, June 2022
- NASA Ames Research Center, March 2022
- Digital Humanities at UT Austin, March 2022
- Arthur AI, December 2021
- University of Washington Colloquium, October 2021
- Data Science Alliance & San Diego Machine Learning, April 2021
- Zou Lab, Stanford University, April 2021
- BigInsight (Norwegian AI Center), March 2021
- Kundaje Lab, Stanford University, March 2021
- Fiddler Labs, February 2021

CONFERENCE & JOURNAL REVIEWING

- Neural Information Processing Systems (NeurIPS): 2018, 2019, 2020, 2021, 2022
- International Conference on Learning Representations (ICLR): 2021, 2022, 2023
- International Conference on Machine Learning (ICML): 2020, 2021, 2022
- Artificial Intelligence and Statistics (AISTATS): 2021, 2023
- Machine Learning for Healthcare (MLHC): 2020, 2021, 2022
- Artificial Intelligence (Elsevier), Patterns (Cell), Machine Learning (Springer)

SERVICE AND VOLUNTEERING

- Graduate Applications Reader, University of Washington, 2020-2021
- Computer Science Ph.D. Mentoring, University of Washington, 2018-2019
- Visit Days Coordination, University of Washington, 2018
- Undergraduate Admissions Interviewing, Columbia University, 2018-2020
- Computer Science Undergraduate Mentoring, Columbia University, 2016-2017