JANE DU

zd16@illinois.edu
janezdu.github.io

RESEARCH INTERESTS

Sparsity, Federated Learning, Multitask Learning - Machine Learning, Optimization, Algorithms

EDUCATION

Ph.D. in Computer Science from University of Illinois, Urbana-Champaign **Aug 2021 – present**
- Advised by Prof. Arindam Banerjee

M.S. in Computer Science from Cornell University **May 2021**
- Advised by Prof. Karthik Sridharan

B.S. in Computer Science from Cornell University, Minor in Mathematics **May 2019**

PEER-REVIEWED CONFERENCE PUBLICATIONS

J. Du, A. Banerjee, "Computationally Efficient Methods for Invariant Feature Selection with Sparsity", In *Proceedings of the Forty-first Conference on Uncertainty in Artificial Intelligence* (UAI 2025)

RESEARCH EXPERIENCE AND AWARDS

Personalized Federated Learning: communication and parameter-efficient personalization **Ongoing**
- Reduce communication cost with privacy guarantees with on personalized federated learning (FL) with adapters
- Provide generalization and convergence bounds for personalized FL, verified empirically

Nonconvex Constrained Optimization with 2-Player Games **May 2021**
- Extend constrained optimization via 2-player games to a broader class of nonconvex problems (satisfying KL inequality)

Randomized Iterative Alternating Direct Implicit (ADI) Method **May 2019**
- M.S. project supervised by Prof. Alex Townsend, collaborating with Prof. Robert Gower and Nidham Gazagnadou
- Randomize the ADI algorithm using sketch-and-project methods for Sylvester equations with unstructured matrices as input

AcaRank **Spring 2018 – Fall 2018**
- Design and implement an application ranking academic institutions based on h-index rather than paper quantity
- Use LSTMs and similarity modelling to recommend researchers for review of a paper given abstract

Self-Navigating Robots Use BLE, Circuit Cellar **Dec 2018**
- Design and construct a pair of robots that search for a beacon using Bluetooth RSSI

ELI Undergraduate Research Award, Cornell University**,** Ithaca, NY **Oct 2016 – May 2017**
- Supervised by Prof. Eilyan Bitar.
- Design a system that can better harness renewable energy sources in urban environments to dampen fluctuations in energy generated by clean sources using capacity of electric vehicle batteries not in use

WORK EXPERIENCE

Software Development Intern, Microsoft, remote **May 2021– Aug 2021**
- Develop samples for audio ML in Windows Machine Learning, a high-performance API based on ONNX runtime and DirectML
- Open-source code available at https://github.com/microsoft/Windows-Machine-Learning

Software Development Intern, Microsoft, Redmond, WA **May 2018 – Aug 2018**
- Automate the collection and compilation of performance logs from Universal Store microservices
- Pipeline the data collected for use in a capacity forecast model to prepare for holiday service
- Leverage CosmosDB, Azure WebJobs, Azure Active Directory, and other cloud services for automatic data collection and storage

Software Development Intern, Geotab, Oakville, ON **May 2017 – Aug 2017**
- Create Selenium-based test suites to scrape Geotab web interface, collecting screenshots to provide visual context for translators

Software Development Intern, Geotab, Oakville, ON **May 2016 – Aug 2016**
- Write scripts to automatically create virtual machines as development environments and per-person build servers
- Use Google Compute Engine SDK, Big Data (BigQuery) and Google Datalabs to collect and visually present build server status

Teaching Assistantships, University of Illinois at Urbana-Champaign, Urbana, IL **Fall 2023 – Spring 2025**
- CS 446, Machine Learning; develop exams and assignments; manage office hours and logistics
- CS 440, Artificial Intelligence; develop assignments and provide classroom support

Teaching Assistantships, Cornell University, Ithaca, NY **Fall 2016 – Spring 2021**
- Awards in 2018, 2019, and 2020 for excellence in teaching

- Average 4.8/5 rating on teaching assistantship feedback for spring 2020
- CS 2112, Honors Object Oriented Programming
- CS 4850: Mathematical Foundations for the Information Age
- CS 4700: Foundations of Artificial Intelligence
- CS 2110: Object Oriented Programming
- CS 4780: Introduction to Machine Learning

SERVICE AND OUTREACH

Conference Reviewer
- International Conference on Machine Learning (ICML) **2023**

Grad Women in CS (GradWCS) at UIUC **2024-present**
- Assist with monthly student-faculty luncheons as a community liaison and member of planning committee

Committee Chair: Expand Your Horizons (EYH) **2019-2020**
- Facilitate computer science workshop for outreach for 11-14yo girls in STEM
- Transition workshop to remote in early stages of COVID-19

Women in Computing (WICC) at Cornell **Spring 2017, Fall 2018**
- Mentor undergraduate women interested in computer science