YI ZHANG

Minneapolis, MN, 55414 ⋄ (612) · 286 · 5318 ⋄ Email: yi.zhang@vanderbilt.edu ⋄ Website: yizhan2854.github.io

EDUCATION

Vanderbilt University
PhD in Computer Science **Starting Aug. 2022**
Supervisor: Dr. Tyler Derr [Profile Link]
Research Group: Network and Data Science (NDS) [Group Link]
Research Interest: Artificial Intelligence | Graph Neural Networks | NLP | Recommender Systems
Awards: Russell G. Hamilton Scholar | Engineering Graduate Fellowship | Dean's Graduate Fellowship

University of Minnesota, Twin Cities (UMTC)
Bachelor in Computer Science **May 2022 (Conferred)**
Awards: Maroon Global Excellence Scholarship | Distinction
CS Major GPA: 3.97/4
CS Major Courses: Calculus | Linear Algebra and Differential Equations | Multi-Variable Calculus | Applied Linear Algebra | Analysis of Numerical Algorithms | Sparse Matrix Computations | Probability and Statistics | Machine Learning | Computational Genomics | C/C++ | Intro to Algorithms and Program Development | Discrete Structures | Machine Architecture and Organization | Algorithm and Data Structure | User Interface Design | Operating Systems | Program Design and Development | Advanced Programming Principles | CS Research | Directed Math Research | Directed CS Research

PUBLICATIONS AND PAPERS

1. **Zhang, Y.**, Boley, D., Harwell, J., & Gini, M. (2022) A Correlated Random Walk Model to Rapidly Approximate Hitting Time Distributions in Multi-Robot Systems. *17th International Conference on Intelligent Autonomous Systems*

2. **Zhang, Y.**, & Boley, D. (Under Revision). Nonlinear Multi-Objective Flux Balance Analysis of the Warburg Effect. *arXiv*. https://arxiv.org/abs/2111.12145

3. **Zhang, Y.** (2021). An In-depth Summary of Recent Artificial Intelligence Applications in Drug Design. *arXiv*. https://arxiv.org/abs/2110.05478v1

RESEARCH EXPERIENCE

Department of Mathematics, UMTC May 2021 – Jan. 2022
Supervisor: Dr. Jeff Calder
Keywords: Semi-Supervised Learning, Graph Neural Networks, Stochastic Processes, Network, Active Learning

- Proposed Poisson Learning with Discounted Return (DR-PoiLea) that consistently outperformed the current state of art, vanilla PoiLea, by 1-2% classification accuracy at extremely low label rates using 3 common datasets (FashionMNIST, MNIST, PUBMED).

Department of Computer Science and Engineering, UMTC Apr. 2021 – Feb. 2022
Supervisors: Dr. Daniel Boley, Dr. Maria Gini
Keywords: Swarm Robot, Stochastic Processes, Network, Sparse Matrix

- Developed a computation model that can efficiently approximate the HT distributions for multi-robot searching processes.

Department of Computer Science and Engineering, UMTC Nov. 2020 – June 2021
Supervisor: Dr. Daniel Boley
Keywords: Biological Modeling, Nonlinear Programming, Multi-Objective Optimization

- Developed a multi-objective non-linear flux balance analysis model of a significant biological phenomenon, Warburg Effect, in different cell types.

INTERNSHIP

Lattix, Inc, North Reading, MA Summer 2021
Keywords: Dependence Structure Matrix, Software Engineering, System Engineering

- Modeled the automobile manufacturing process in SysML, leveraged the software Lattix Architect to analyze the resulted source code, reduced the system cyclicity, and demonstrated the utility of Lattix Architect in System Engineering.