
DONNA HOOSHMAND

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EDUCATION

PHD: COMPUTER SCIENCE Northwestern University, Current

- Advisor: Kristian Hammond
- Research Topics: Artificial Intelligence, Automation of Data Science, Curriculum Learning, Deep Learning, Machine Learning, Natural Language Processing.
- GPA: 3.98/4.00
- Expected Graduation Date: 08/2026

MASTER OF SCIENCE: COMPUTER SCIENCE Northwestern University, 07/2023

- GPA: 3.98/4.00

BACHELOR OF SCIENCE: COMPUTER SCIENCE University of Oregon, 06/2021

- Double major in Computer Information Systems (emphasis on security) and Mathematics
- Graduated Summa Cum Laude, with a GPA of 4.07
- Spring 2019, Fall 2020, Winter 2020 - Dean's List

RESEARCH EXPERIENCE

NORTHWESTERN UNIVERSITY

PhD Research Assistant 09/2021 to Current

- Analysis-Augmented Generation (AAG): A method for analyzing structured data generate facts in natural language that guide language generation in language models.
- Satyrn: A neurosymbolic platform that employs AAG to create Accurate, fluent, and coherent reports from large-scale databases.
- Tytan: A data ingestion tool that generates a lightweight knowledge representation of the data, describing the objects in the dataset to apply analytics and produce information.
- Retinal Ischemic Perivascular Lesions (RIPLs) Detection in Optical Coherence Tomography (OCT) scans. Using both classical Deep Learning methods to optimize the training set by using Machine Teaching and Curriculum Learning.
- Geographic Atrophy (GA) detection in OCT scans. Using the same methods mentioned above.

UNIVERSITY OF OREGON

Research Assistant 06/2020 to 06/2021

- Research at the Oregon Networking Research Group (ONRG) Lab at University of Oregon on “Longitudinal Analysis of Major Video-Streaming Services in the U.S.”

PUBLICATIONS

- Marko Sterbentz, Cameron Barrie, Shubham Shahi, Abhratanu Dutta, **Donna Hooshmand**, Harper Pack, Kristian J. Hammond, 2024. Satyrn: A Platform for Analytics Augmented Generation. In Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing, pages 6360-6385, Miami, Florida, USA. Association for Computational Linguistics.
- Michael Drakopoulos, **Donna Hooshmand**, Laura A. Machlab, Paul J. Bryar, Kristian J. Hammond, Rukhsana G. Mirza, Machine Teaching Allows for Rapid Development of Automated Systems for Retinal Lesion Detection From Small Image Datasets., Ophthalmic Surgery, Lasers and Imaging Retina, 2024, 1-4
- Marko Sterbentz, Cameron Barrie, **Donna Hooshmand**, Shubham Shahi, Abhratanu Dutta, Harper Pack, Andong Li Zhao, Andrew Paley, Alexander Einarsson, Kristian Hammond, Lightweight Knowledge Representations for Automating Data Analysis., arXiv preprint arXiv:2311.12848, 2023
- [Pending] Michael Drakopoulos, **Donna Hooshmand**, Laura Machlab, Paul Bryar, Kristian Hammond, Rukhsana Mirza, Machine teaching for automated retinal lesion detection in small image sets.

POSTERS

- Michael Drakopoulos, **Donna Hooshmand**, Laura Machlab, Kristian Hammond, Rukhsana Mirza, Automated identification of subretinal drusenoid deposits in dry age-related macular degeneration from a small imaging dataset, Northwestern University Feinberg School of Medicine 17th Annual Lewis Landsberg Research Day, 2023
- Michael Drakopoulos, **Donna Hooshmand**, Laura Machlab, Paul Bryar, Kristian Hammond, Rukhsana Mirza, Automated identification of retinal ischemic perivascular lesions, a potential imaging biomarker of cardiovascular disease, American Medical Association Research Challenge, 2023
- Michael Drakopoulos, **Donna Hooshmand**, Laura Machlab, Paul Bryar, Kristian Hammond, Rukhsana Mirza, Machine teaching enables rapid development of first automated system to identify retinal ischemic perivascular lesions, Retina Society Annual Meeting, 2023

TEACHING EXPERIENCE

NORTHWESTERN UNIVERSITY

- Teaching Assistant** 01/2023 to Current
- TA for COMP SCI 394 / CHEM ENG 395 / MECH ENG 395: Artificial Life - Winter 2023
 - TA for MSAI 431: Frameworks of AI - Winter 2024, Fall 2024
 - Designing the curriculum for COMP SCI 348: Intro to AI - Fall 2024 - Spring 2025

- Research Mentor** 06/2022 to Current
- Took initiative to create research curricula and projects for mentees to support them in their academic and research journeys.
 - Collaborated with faculty members to facilitate interdisciplinary projects to promote applications of AI to real world problems.

UNIVERSITY OF OREGON

- Teaching Assistant** 09/2019 to 06/2021
- TA for CIS 212: Computer Science III - Spring 2020
 - TA for Math 232: Elements of Discrete Mathematics II - Winter 2020, Winter 2021
 - TA for Math 231: Elements of Discrete Mathematics I - Fall 2019, Spring 2020, Fall 2020

TECHNICAL SKILLS

- **Technical languages:** C/C++, HTML/CSS, Python, SQL, SQLAlchemy
- **Libraries / Frameworks:** Matplotlib, NumPy, OpenCV, Pandas, PyTorch, SciPy, Scikit-Learn, TensorFlow
- **Tools:** Git, Docker
- **Soft skills:** communication, leadership, work ethic, time management

AWARDS AND CERTIFICATES

- Peter and Adrienne Barris Outstanding Teaching Assistant Award (Northwestern University, Winter 2023)
- Enhanced Funding Award (Northwestern University, Fall 2022-Winter2023)
- Philip Seeley Scholarship in Computer Science and Information Technology (University of Oregon, Spring 2021)
- NSF-REU funding for research in Machine Learning with the ONRG group (University of Oregon, 2020-2021)
- Mentoring Up + Down, Northwestern University
- Discussion of Teaching, CIRTLE, Northwestern University
- Iran's Inventions Grand Prize (Spring 2017)
- Khwarizmi Young Award (Spring 2017)
- Iran's Great Mathematics Competition (Spring 2015)

COMMUNITY

- Mentored Undergrade, Master's, and PhD students at Northwestern University.
- Board member of Computer Science PhD Advisory Counsel at Northwestern University.
- Board member of the Graduate Women in Computing Group at Northwestern University.
- Board member of the Artificial Intelligence Journal Club at Northwestern University.
- Board member of Iranian Student Association at Northwestern University.
- Founder and President of the Persian Student Association at University of Oregon.
- Founder and President of Mirzakhani Society at University of Oregon.