Donna Hooshmand

Chicago, IL | donna.hooshmand@northwestern.edu | (503)916-9628 | DonnaHooshmand.com
www.linkedin.com/in/donnahooshmand | github.com/donnahooshmand

Education

PhD in Computer Science, Northwestern University — Sep 2021 – Current

- Member of the Cognition, Creativity, and Communication (C3) lab, Advised by Kristian Hammond
- GPA: 3.98/4.00
- Expected graduation: 07/2027

MS in Computer Science, Northwestern University — Sep 2021 – Jun 2023

- GPA: 3.98/4.00

BS in Computer Science and Mathematics, University of Oregon — Sep 2018 – Jun 2021

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

Work Experience

PhD Research Associate, Northwestern University – Evanston, IL — Sep 2021 – Current

- Analysis-Augmented Generation (AAG): A method for analyzing structured data to 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 data set to apply analytics and produce information.
- Detection of retinal ischemia perivascular lesions (RIPL) and geographic atrophy (GA) in optical coherence tomography (OCT) scans, using Curriculum Learning.

PhD Research Intern, Walt Disney Imagineering – Los Angeles, CA — Jun 2025 – Sep 2025

- Developed automated pipelines to ingest heterogeneous datasets and dynamically generate schemas using knowledge graph techniques.
- Implemented graph-based representations that allow efficient querying, dependency tracking, and insight discovery.
- Engineered processes to transform unstructured text into structured knowledge graphs for dependency and relationship exploration.

Undergraduate Research Assistant, University of Oregon – Eugene, OR — Jun 2020 – Jun 2021

- Conducted research at the Oregon Networking Research Group (ONRG) Lab at the 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

Patents

- Jay Bisen, Michael Drakopoulos, **Donna Hooshmand**, Hayden Sikora, Laura Machlab, Paul Bryar, Kristian Hammond, Emma Alexander, Rukhsana Mirza, Retinal Ischemic Perivascular Lesion Identification Using Machine Teaching Techniques, Northwestern University Innovation and New Ventures Office, Disclosure ID: Disc-ID-25-04-21-001, Provisionally Accepted (May 2025)
- (IN PROGRESS: Patent with Walt Disney Imagineering)

Technologies

Technical Languages: C/C++, CYPHER, HTML/CSS, Python, SQL, SQLAlchemy, MATLAB
Libraries/Frameworks:

- Deep Learning & ML:
  - PyTorch, TensorFlow, scikit-learn, Hugging Face Transformers
- Data Science & Visualization:
  - NumPy, SciPy, Pandas, Matplotlib, OpenCV
- Reinforcement Learning & Simulation:
  - MuJoCo, OpenAI Gym
- Graph & Knowledge Representation:
  - PostgreSQL, Neo4j, NetworkX

Tools: Docker, Git, JupyterLab / Colab, Linux/Unix
Soft Skills: Adaptability, Collaboration, Leadership, Problem solving, Prompt Engineering / LLM Query Design

Awards

Peter and Adrienne Barris Outstanding Teaching Assistant Award, Northwestern University — Winter 2023
Enhanced Funding Award, Northwestern University — Fall 2022-Winter2023
Philip Seeley Scholarship in CS and IT, University of Oregon — Spring 2021
NSF-REU funding for ML Research, University of Oregon — 2020-2021
Iran's Inventions Grand Prize, Iran — Spring 2017
Khwarizmi Young Award, Iran — Spring 2017
Iran's Great Mathematics Competition, Iran — Spring 2015

Current Leadership Roles

Research Mentor in Artificial Intelligence Projects, Northwestern University — Jun 2022 – Current
Teaching Assistant in Computer Science courses, Northwestern University — Jan 2023 – Current
Computer Science PhD Advisory Committee, Northwestern University — Fall 2022 – Current
Officer of Artificial Intelligence Journal Club, Northwestern University — Fall 2022 – Current
Graduate Women in Computing Group Committee, Northwestern University — Fall 2022 – Current
Iranian Student Association Committee, Northwestern University — Fall 2022 – Current