

ASHWIN M DEVANGA

PhD in Computer Science, University of North Dakota, Grand Forks, ND

Software Engineer in Test - Data Analysis, Mathworks, Natick MA

MS in Data Analytics Engineering, Northeastern University, Boston, MA

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INTERESTS

- Reinforcement Learning
- Machine Learning and Data Mining

EDUCATION

Level of Education	Major / University	Institute	Year	Grades
Graduate Specialization: Graduation(PhD)	<i>Computer Science</i> Univ. of North Dakota	Univ. of North Dakota, Grand Forks, ND	2025- current	
Graduate Specialization: Graduation(M.S)	<i>Data Analytics Engineering</i> Northeastern University	Northeastern University, Boston, MA	2020- 2022	3.79/4
UnderGraduate Specialization: UnderGraduation(B.Tech)	<i>Biotechnology</i> IIT Guwahati	IIT Guwahati, Guwahati, India	2016- 2020	6.01/10

TECHNICAL SKILLS

- **Languages** (Python, R, MATLAB, JAVA, C)
- **Scripting** (Linux shell [bash, zsh])
- **Tools** (GIT, Make, Tableau, Simio, L^AT_EX, Arduino, Raspberry Pi)
- **Operating Systems** (Windows, Linux [Deb, rpm, arch])
- **Web Technologies** (HTML, PHP, CSS, TypeScript, Markdown)

EXPERIENCE

- **Teaching Assistant** (SEECs, Northeastern University)
(Jan'25 - Current)
 - Courses Taught: Secure Software Engineering, Object-Oriented Programming
- **Software Engineer in Test - MATLAB Math, Data Analysis and SciML tools** (Quality Engineering, The Mathworks)
(Oct'22 - Oct'24)
 - Work on Core Math and Data Analysis Functions in MATLAB.
 - Build test strategies/procedures and implement them.
 - Some projects include automatic differentiation and Generative AI for MATLAB copilot - Data Analysis.
- **Teaching Assistant** (MIE-COE, Northeastern University)
(Guide: Dr. Dehghanimohammadabadi Mohammad, MIE-COE, Northeastern University, Jan'21 - Aug'22)
 - Courses Taught: Reinforcement Learning, Metaheuristics and Applications, Simulation Analysis.
- **Research Assistant** (MIE-COE, Northeastern University)
(Guide: Dr. Dehghanimohammadabadi Mohammad, MIE-COE, Northeastern University, Jan'21 - Aug'22)
 - Reinforcement Learning and Metaheuristics for Operations Research Problems.
 - Worked on Operations Research problems such as the Vehicle Routing Problem and Job Scheduling.
 - Environment and Tools used: MATLAB, Python, C#, Simio.
- **Research Internship** (Chubu University, Japan)
(Guide: Prof. K. Yamauchi, May 2018 – Jul 2018, May 2019 – Jul 2019)
 - Project based on machine learning on a budget. Implementation of Supervised Reinforcement learning using Actor-Critic model for one-step learning.
 - Development of a modified actor-critic algorithm with dual actors to improve performance.
 - Environment used: Python with PyTorch and JAVA.

MAJOR PROJECTS

- **DM-Gym: A set of environments to develop reinforcement learning agents to solve Data Mining problems** (Research Project)
(Guide: Dr. Dehghanimohammadabadi Mohammad, MIE-COE, Northeastern University, Aug'21 - Current)
 - Masters Thesis Project. Presented at Inform's Annual Meeting 2021, Anaheim, Los Angeles, CA.
 - GitHub Link: <https://github.com/ashwin-M-D/DM-Gym>
 - PyPI Link: <https://pypi.org/project/dm-gym/>
- **Job Scheduling and Vehicle Routing Problem using Reinforcement Learning** (Research Project)
(Guide: Dr. Dehghanimohammadabadi Mohammad, MIE-COE, Northeastern University, Jan'21 - May'22)
 - Use Reinforcement Learning to optimize Job scheduling and solve the Vehicle Routing Problem.
 - Compare RL methods with metaheuristic methods to solve the same problem.
 - Used Tabular and DQN based RL approaches.
 - Used Genetic Algorithm and Particle Swarm Optimisation based metaheuristic approaches.
 - Environment and tools used: Python, C# and Simio.
- **Human computer collaborated learning through Reinforcement Learning.** (Research Project)
(Guide: Prof. K. Yamauchi, May'18 - Dec'18)
 - The system forms a collaboration with the user and a reinforcement learning agent to speed up training creating a one-shot learning algorithm.
 - Research paper published in ICPRAM 2019.

PUBLICATIONS

- Belsare, S., Devanga, A., Dehghanimohammadabadi, M. (2024). **AI-Driven Multi-Objective UAV Route Optimization.** In *2024 Winter Simulation Conference (WSC)*. **Published**
- Devanga, A., Badilla, E.D. and Dehghanimohammadabadi, M. (2022). **Applied Reinforcement Learning for Decision Making in Industrial Simulation Environments.** In *2022 Winter Simulation Conference (WSC)* (pp. 2819-2829).
DOI: 10.1109/WSC57314.2022.10015282.
- Devanga, A. and Yamauchi, K. (2019). **Collaborative Learning of Human and Computer: Supervised Actor-Critic based Collaboration Scheme.** In *Proceedings of the 8th International Conference on Pattern Recognition Applications and Methods - Volume 1: ICPRAM*, ISBN 978-989-758-351-3, pages 794-801.
DOI: 10.5220/0007568407940801
- 若原 涼, Ashwin Devanga, and 山内康一郎 (2019). 人と機械学習の協調による未知問題の解の探索法. In *The Proceedings of the 29th Annual Conference of Japanese Neural Network Society*. JNNS2019P2-69

CONFERENCES AND TALKS

- Winter Simulation Conference 2022 - Speaker : **Applied Reinforcement Learning for Decision Making in Industrial Simulation Environments.** Singapore.
- INFORMS Annual Meet 2021 - Session Chair and Speaker : **DM-Gym: A set of environments for developing reinforcement learning agents to solve Data Mining problems.** Anaheim, Los Angeles, CA, USA.
- ICPRAM 2019 - Poster Presentation : **Collaborative Learning of Human and Computer: Supervised Actor-Critic based Collaboration Scheme.** Prague, Czech Republic.