

Nihal Gunukula

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EDUCATION

Purdue University

West Lafayette, IN

Bachelor of Science in Computer Science, Minor in Math, Certificate in Entrepreneurship

Aug. 2023 – May 2026

- GPA: 4.0 — Dean's List & Semester Honors
- Data Structures, Object Oriented Programming, Entrepreneurship, Linear Algebra, Statistics

WORK EXPERIENCE

Co-Founder & CEO

January 2024 – Present

OpenSpaces

West Lafayette, IN

- Launching a storage solutions company that connects people in need of storage with people with excess storage.
- Built application using React JS and Node JS and are hosting it with Amazon Web Services
- Recieved a \$5,000 award for pitching the idea at the midwestern conference BoilerLaunch

Software Developer

August 2023 – Present

Indiana Soybean Alliance (Corporate Partnerships Data Mine)

West Lafayette, IN

- Led a team of 5, creating a python streamlit-based platform with over 100 Indiana farmers' programs.
- Headed a Data Analysis team using Python Pandas & R to extract and analyze farming programs, to increase agricultural decision-making for farmers.
- Successfully demonstrated the minimum viable product to the Indiana Soy Bean Alliance, discussing potential website integration strategies.

RESEARCH EXPERIENCE

Inverse Reinforcement Learning Replication Study

November – December 2023

ML@Purdue, Dags Hub Advanced Track 2nd Place Winners

West Lafayette, IN

- Co-lead author of a paper in progress for Re: Science publication: <https://openreview.net/forum?id=3JfnI5WjUc>
- Replicated a Maximum Entropy Deep Inverse Reinforcement Learning model for Human Social Navigation, demonstrating accuracy within 2 meters of the original in TensorFlow with < 25% of the computational power.
- Conducted extensive ablation studies, enhancing the understanding of model dynamics, and providing an open-source state-of-the-art model for future machine learning research
<https://dagshub.com/ML-Purdue/hackathonf23-Stacks>

Project Lead

October 2023 – Present

Purdue Fusion Studio for Entertainment and Engineering

West Lafayette, IN

- Spearheaded two pioneering projects integrating Machine Learning with Systems Engineering in Theatre, leading teams of 4 under the guidance of Professor Rich Dionne.
- Developed an innovative Markov Decision-Making Process-based platform for intelligent stage navigation, enhancing stage direction efficiency.
- Implemented LIDAR positioning to visualize the stage director's vision for robotic movements dynamically.

Undergraduate Researcher

September 2023 – Present

Purdue (IDEAS) Intelligent Design for Empathetic & Augmented Systems Lab

West Lafayette, IN

- Collaborated with Professors Aniket Bera and Kshitij Tiwari on a cutting-edge deep maximum entropy inverse reinforcement model, achieving a significant breakthrough with a loss of 2.33 in a 400 space.
- Designed a Unity Engine virtual environment using C# and Steam VR for collecting human navigational data, contributing to groundbreaking research in the field.
- Lead author for research with potential for publication at the International Conference on Robotics and Automation: <https://arxiv.org/abs/2312.03651>
- Building the MoonShot Pitch Competition Finalist project ChairCare, an innovative indoor navigation system for disabled individuals <https://www.youtube.com/watch?v=XVVtSWsN-iU>

TECHNICAL SKILLS

Languages: Java, Python, C/C++, C#, JavaScript, HTML/CSS, R

Frameworks: React, Node.js, JUnit, SpringBoot, MongoDB

Developer Tools: Git, Google Colab, Visual Studio Code, PyCharm, IntelliJ, Eclipse

Libraries: Pandas, NumPy, Matplotlib, TensorFlow