Nihal Gunukula

Contact Me: 669-2478-938 | nihalgunukula@gmail.com
More information: linkedin.com/in/nihalgunu | Personal Projects: github.com/nihalgunu

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
- Relevant Course Work: Object Oriented Programming, Entrepreneurship, Linear Algebra, Statistics
- Completed: Data Structures at EVC College

Professional Experience

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, to 2x stage direction efficiency.
- Implemented advanced technology to dynamically interpret the stage director's vision for robotic movements.

Software Engineer August 2023 – Present
Indiana Soybean Alliance (Corporate Partnerships Data Mine) *West Lafayette, IN*

- Led a Python Streamlit-based team of 5, creating a platform with over 100 Indiana farmers' programs.
- Headed a Data Analysis team using Python Pandas & R to extract and analyze over a 100 farming programs, to 2x agricultural decision-making for farmers.
- Successfully demonstrated the minimum viable product to 3 key members of the Indiana Soy Bean Alliance, discussing potential website integration strategies.

Undergraduate Researcher June 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 creating large, and limitless sets of human navigational data.
- Lead author for research awaiting publication at ICRA: https://arxiv.org/abs/2312.03651

Awards & Achievements

DagsHub X ML@Purdue Machine Learning Hackathon, 2nd Place Recieved: December 2023
https://dagshub.com/ML-Purdue/hackathonf23-Stacks

- 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.
- Co-lead author of a paper in progress for Re: Science publication: https://openreview.net/forum?id=3JfnI5WjUc

Purdue Moonshot Pitch Challenge Finalist Recieved: November 2023
https://www.youtube.com/watch?v=XVVtSWsN-iU

- Presented ChairCARE, an innovative indoor navigation system for disabled individuals, integrating intelligent routing with deep learning technologies to 2x workplace productivity.
- Utilized advanced data transformation techniques for blueprint analysis and developed a prototype for assisted driving using live sensory inputs.

Aditional information

Leadership: Vice President of Hall Club, Head of Uni. Outreach of Anvil, Head of Events of Google Developers Club
Languages: Java, Python, C/C++, C#, JavaScript, HTML/CSS, R
Frameworks: Amazon Web Services, React, Node.js, JUnit, SpringBoot, MongoDB
Developer Tools: Git, Google Colab, Visual Studio Code, PyCharm, IntelliJ, Eclipse
Libraries: Pandas, NumPy, Matplotlib, TensorFlow