Maanas Belambe

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Education

University of Illinois Urbana-Champaign **December 2025**

Bachelor of Science in Computer Science & Statistics, Minor in Economics GPA: 3.97

Relevant Coursework: Algorithms, Artificial Intelligence, Baseball Analytics, Database Systems, Data Structures

Experience

Mitsubishi Electric Power Products Inc. **May 2025 – current**

Power-I Intern (Software) *Warrendale, PA*

- Working on an end-to-end computer vision pipeline using YOLOv11, SAM, and UNET for object detection and instance segmentation to extract real-time temperature and oil-level gauge readings into the monitoring dashboard.
- Leveraging ML-supported annotation within Label Studio to label 10,000+ gauge images to iteratively improve accuracy and robustness of objection detection and instance segmentation models.

Illinois Mathematics Lab **January 2025 – current**

Undergraduate Researcher *Champaign, IL*

- Analyzing Nash equilibria and best response strategies in the McAdams Poker Model, using mathematical proofs, optimization techniques, and probability theory to investigate optimal decision-making and equilibrium stability.
- Conducting simulations and statistical analyses via Mathematica to validate theoretical insights and explore strategic behaviors, bridging mathematical modeling with experimental approaches to attain practical results.

ServiceLink **May 2024 – August 2024**

Data Science Analyst Intern *Pittsburgh, PA*

- Optimized model performance for image captioning and property damage classification by employing prompt engineering techniques across various multimodal large language models (e.g., Phi-3-vision, LLaVA, and GPT-4o).
- Automated quality assurance to identify discrepancies and improve operational efficiency by extracting key insights from inspection reports using regular expressions and comparing these findings with image analyses.
- Performed multi-stage error analysis to improve model performance metrics, using confusion matrix evaluation to guide prompt tuning and reduce classification errors across 20,000+ property images.

Ghost Electric Motorcycles **January 2024 – May 2025**

Software Team Lead *Champaign, IL*

- Built the team website, designing user interfaces in Figma and a responsive web application with React, and deployed through cPanel to ensure seamless performance across mobile and desktop platforms.
- Enhanced website functionality by gathering feedback weekly from team members, completing iterative development cycles to align features with user needs in a dynamic environment.

Projects

World University Ranker | *Python, Node.js, SQL, Google Cloud Platform* **March 2024 – May 2024**

- Designed a robust SQL schema in Google Cloud Platform, integrating 4 datasets (30,000+ records) with Python and incorporating stored procedures and triggers to enhance backend functionality and automate data integrity checks.
- Created dynamic filtering options for country, major, and university data with Node.js, improving the accessibility and visibility of relevant information.
- Implemented a secure login system to allow users to maintain a list of favorite universities between visits to website.

Image Recognition Sudoku Solver | *Python, OpenCV* **May 2023 – August 2023**

- Built a Python GUI application using Pygame that generates valid Sudoku puzzles in less than 1 second through a backtracking algorithm that removes numbers from solved boards to ensure single-solution validity.
- Developed a board-scanning feature that processes physical Sudoku boards and transforms them into interactive digital boards by applying OpenCV image preprocessing and contour detection.

Technical Skills

Languages: Python, Java, C/C++, R, SAS, JavaScript, SQL
Frameworks & Libraries: Flask, React, Django, Node.js, Shiny, pandas, Hugging Face, OpenCV, YOLO, scikit-learn
Tools & Platforms: Git, Jira, Google Cloud Platform, Microsoft Azure, Amazon S3/SageMaker, OpenAI Studio