

# Bhavya Minesh Shah

Email: [bshah43@asu.edu](mailto:bshah43@asu.edu) | Phone: +1 (623)332-9509

LinkedIn: [bhavya-minesh-shah](#) | GitHub: [BhavyaShah1234](#) | Research: [34NoLQ8AAAAJ](#) | Website: [5016411](#)

## EDUCATION

<b>Master of Science in Robotics and Autonomous Systems (Artificial Intelligence)</b> Arizona State University, Tempe, Arizona, United States	<b>August 2024 - May 2026</b> GPA: 3.7 / 4.0
<b>Bachelor of Technology in Computer Science and Engineering</b> Vellore Institute of Technology, Vellore, Tamil Nadu, India	<b>August 2019 - July 2023</b> GPA: 3.12 / 4.0

## PROFESSIONAL EXPERIENCE

<b>Artificial Intelligence Engineer</b> Accurate Industrial Controls Pvt Ltd	<b>August 2023 - May 2024</b> Pune, Maharashtra, India
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- Developed a machine learning pipeline for automated defect detection in LPG cylinders, leveraging AI and computer vision to streamline processes, reduce manual effort, and enable scalability across industries.
- Designed the B-Star algorithm, improving the efficiency of the Autonomous Boat's path-planning system, achieving a 300% speed increase over A-Star for real-time marine navigation.
- Enhanced data fusion accuracy in sensor systems by replacing microcontroller clocks with UNIX timestamps, addressing synchronization issues and improving real-time integration reliability.
- Mentored interns on AI concepts for industrial automation, providing hands-on training and fostering collaboration, resulting in successful project outcomes and enhanced team productivity.

<b>Machine Learning Intern</b> Swasthya.ai	<b>September 2022 - March 2023</b> Mumbai, Maharashtra, India
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- Developed a Python-based NLP pipeline to clean and process unstructured medical data, automating data extraction from OPD records and prescription notes, reducing manual effort, and improving efficiency.
- Addressed inaccuracies caused by medical abbreviations and inconsistencies by standardizing terminology and using BERT and LLMs for named entity recognition, improving model accuracy and reducing false positives by 80%.
- Deployed machine learning models on AWS and Azure, optimizing performance for cloud environments to handle large datasets efficiently and ensure scalability.

## TECHNICAL SKILLS

- Programming Languages:** Python, C/C++, Java, JavaScript, MATLAB, PHP, HTML, CSS, JQuery, AJAX, Bootstrap, SQL, NoSQL, MongoDB, PostgreSQL, TypeScript, Shell Scripting, R.
- Frameworks:** Django, Flask, FastAPI, LangChain, ROS Noetic, ROS2 Humble, TensorFlow, PyTorch, Keras, MediaPipe, Selenium, Nvidia Triton Inference Server and Client, ONNX, TensorRT, Hugging Face
- Simulation/Modelling:** Gazebo, MATLAB Simulink, RViz
- Development Tools:** Git, Github, CI/CD Pipelines, Jupyter Notebook, Google Colab, VS Code, Pycharm, Docker
- Cloud:** AWS, Microsoft Azure, Google Cloud Platform
- Libraries:** Numpy, BeautifulSoup, OpenCV, Pandas, Matplotlib, Seaborn

## PROJECT EXPERIENCE

- Object Measurement using Computer Vision** **March 2021 - May 2021**  
This project uses Computer Vision and tools like OpenCV and Python to estimate the dimensions of an object. It uses concepts like Edge Detection, Contour Detection, Perspective Transform and Warp Perspective.
- Maze Solver Robot** **November 2024 - December 2024**  
This is a project under Dr. Sangram Redkar which involves moving a robotic arm through a maze. The maze is viewed by an overhead camera that is used to plan a path to move the robot arm. This involves concepts like URDF files, Homogenous Transformations, Python, Path Planning, Warp Perspectives, Digital Twins, Transformation Matrices and Forward and Inverse Kinematics. The technical stack involves Python, IKpy, OpenCV, MATLAB.
- Image Captioning, Text Summarization and Language Translation Transformer** **July 2023 - August 2023**  
This is a personal project that leverages the power of Transformer architecture to tackle tasks related to NLP and Vision Language Models. This project helps understand concepts like Attention Mechanism, Self-Attention, Cross-Attention. Data Loaders, CNNs. The libraries used are Tensorflow, Keras, Python, HuggingFace, Tokenizers, NLTK.
- Simulation of BStar for Path Planning** **May 2024 - July 2024**

This is a simulation of novel path planning algorithm BStar. One can edit the start, goal and location and movement of obstacles on a grid created using Matplotlib. The simulation also shows the movements of various entities once a path has been detected. The simulation also takes care of Dead Reckoning.

## **RESEARCH EXPERIENCE**

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- **LENS Lab** **January 2025 - Present**  
Worked under Dr. Ransalu Senanayake
- **IDEALAB** **November 2024 - Present**  
Worked under Dr. Daniel Aukes