BHARAT GANDHI

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EDUCATION

University of Florida — **August, 2024 - present**
Master of Science in Electrical and Computer Engineering (AI and ML Track) — *Florida, USA*

- **GPA:** 4.0/4.0
- **Relevant courses:** Machine Learning, Natural Language Processing, Image Processing and Computer Vision.

National Institute of Technology Calicut — **July, 2016 - June, 2020**
Bachelor of Technology in Mechanical Engineering — *Kerala, India*

- **GPA:** 3.8/4.0
- **Relevant courses:** Introduction to Programming, Statistics, Numerical Methods in Engineering.

EXPERIENCE

Graduate Research Assistant — **January 2025 - present**
Trustworthy Engineered Autonomy(TEA) Lab, University of Florida — *Florida, USA*

- Researched techniques for **Scene Graph** generation from RGB-D images.
- Designed **Variational Autoencoders(VAE)** to reconstruct images to lower the risk of falling to adversarial attacks.

Machine Learning Engineer — **June 2022 - July 2024**
Capgemini Deutschland GmbH — *Düsseldorf, Germany*

- Replaced rule-based Entity Matching with ML-powered **NLP system**, boosting matching accuracy from **52% to 68%**.
- Enhanced model fit and performance by fine-tuning **SBERT, a large-scale Language and Transformer Model**.
- Applied data science techniques for data pre-processing and k-means clustering based on cosine similarity metrics.

Software Engineer — **October 2020 - May 2022**
Capgemini India — *Pune, India*

- Developed JavaScript business rules to optimize master data flows and Web UI, enhancing data accessibility for 9 teams.
- Developed data workflows to manage customer and supplier data movement across systems, facilitating entity creation and modification capabilities.
- Created process flow for data migration from SAP MDG to Stibo STEP.

PEER REVIEWED WORKSHOP PUBLICATIONS

Xiao Li, Bharat Gandhi, Ming Zhan, Mohit Nehra, Zhicheng Zhang, Yuchen Sun, Meijia Song, Naisheng Zhang, Xi Wang *"Fine-Tuning Vision-Language Models for Visual Navigation Assistance"*. In: NewInML Workshop @ ICML (2025).

TECHNICAL SKILLS

Languages	Python, Java, C++, C, R, SQL, CSS, HTML, JavaScript
Frameworks	PyTorch, TensorFlow, OpenCV, Scikit Learn, YOLO, SBERT, LoRA
Tools and Software	AWS, Hugging Face, Stibo STEP, SAP MDG, Git(Version Control)

PROJECTS

Vision Navigation using Vision Language Models (Github Link)

- Leveraged the capabilities of Vision Language Models to assist visually impaired people for indoor navigation tasks by fine tuning BLIP2, a SOTA VLM.
- Utilized **Parameter Efficient Fine Tuning (PEFT)** to drastically bring down computational cost and speed up training.

Multiple handwritten digits and location recognition (Github Link)

- Fine tuned a Convolutional Neural Network for Deep Learning object detection task to recognize handwritten digits on paper and generate bounding boxes around the digits.
- Implemented transfer learning on **YOLOv8**, adding a dense layer on top to train the model on about 13,000 custom images and labels.
- Intersection Over Union score of 0.8 and Mean Average Precision score of 0.9 were obtained.