Vishnu Mukundan TM

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EDUCATION

- **Duke University** — Durham, NC
  Masters in Engineering, Artificial Intelligence; GPA: 4.0/4.0 — *Aug 2024 - Dec 2025*
  Courses: Sourcing for Data Analytics, Modelling Process and Algorithms, Business Fundamentals, Explainable AI.
- **Vellore Institute of Technology** — Vellore, India
  Integrated Masters in Technology, CSE with Data Science; GPA: 8.32/10.0 — *Jul 2019 - Jul 2024*
  Courses: Operating Systems, Data Structures, Analysis Of Algorithms, Machine Learning, Data Science, Databases, Statistics, Mathematics, Linear Algebra, Business Intelligence, predictive models.

SKILLS SUMMARY

- **Languages**: Python, C++, JavaScript, HTML, SQL, Statistics
- **Frameworks**: Numpy, Pandas, Pyspark, Scikit, NLTK, TensorFlow, Keras, PyTorch, OpenCV
- **Platforms**: Kali-Linux, Windows, AWS, GCP, MS Azure, Git

EXPERIENCE

- **Deakin University, Melbourne, Australia** — Hybrid
  SEBE Research Intern (Internship) — *Nov 2023 - Jun 2024*
  - **Mixed Reality**: Developed a pipeline capable of on-edge video optical character recognition and translation by utilizing the Google Vision API and the Google Cloud translation API.
  - Collaborated with Dr. William Raffe to write and deploy the C# code for the wrapper capable of running on a Microsoft Hololens headset and the solution had a real-time accuracy of 83% under controlled testing.
- **Sentics GmbH, Wolfsburg, Germany** — Remote
  Computer Vision Intern (Internship) — *Aug 2022 - Nov 2022*
  - **Computer Vision**: Engineered an algorithm that accurately estimated the base point of an object using pose keypoint data from TRTPose and their 2D-3D correspondence, resulting in a 100% improvement in the accuracy of object location estimation.
  - Conducted extensive research and experimentation with various object and keypoint tracking methods and presented detailed findings and recommendations to the team, providing valuable insights and contributing to the project's success.
- **Miniscule Technologies Pvt Ltd., Chennai, India** — On-Site
  ML Cloud Deployment Engineer (Internship) — *May 2022 - Jul 2022*
  - **Machine Learning and Cloud computing**: Performed extensive research on evaluating major Cloud Service Providers and their readiness for industrial 5G use cases as a Cloud AIOps Engineer.
  - Deployed an on-edge custom face detection model through Amazon Rekognition, trained on employee data stored on Amazon S3 with an accuracy of 88% on the Hikvision AcuSense camera module.

PROJECTS

- **Blind.AI - A blind person assistance App**:
  - Built this voice and gesture-based app to assist individuals with acquired blindness.
  - Added features such as Object Detection by leveraging YOLOv5, Currency Detection through OpenCV, OCR with Pytesseract, and SOS signal using Twilio API.
- **LLMTalk - RAG Chatbot**:
  - Engineered a Streamlit app enabling real-time chat with audio files.
  - Leveraged Langchain, ChromaDB (achieving 95% vector retrieval accuracy), OpenAI's GPT (improving response accuracy by 20%), Integrated audio transcription (98% accuracy) and optimized backend.
- **AutoVizML - One click ML** :
  - Developed a Streamlit-based AutoML application.
  - Facilitated data reading, preprocessing, EDA, model comparison, testing and visualization with a single click.

PUBLICATIONS

- **Handwritten Tamil Character Recognition using a Categorical Boosting Machine**: Presented at the 7th International Conference on Computing, Communication, Control and Automation (ICCUBEA-2023), Pune, India. DOI: https://doi.org/10.1109/ICCUBEA58933.2023.10392044
- **A Media-pipe Integrated Deep Learning Model for ISL (Alphabet) Recognition and Converting Text to Speech with Video Input**: Presented at the 3rd International Conference on Applied Intelligence and Informatics (AII2023), Dubai, UAE, and voted the best paper under the pattern recognition category.
  DOI: https://doi.org/10.1007/978-3-031-68639-9_17