Rahul Maligi

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Education

University of Texas at Austin – Bachelor's in Computer Science (B.S) **GPA: 3.80** **May 2024**

- **Data Structures and Algorithms, Computer Organization and Architecture, Operating Systems**
- **Autonomous Intelligent Robotics, Machine Learning, Speech and Audio Processing**
- **Natural Language Processing, Artificial Intelligence, Computer Vision**

Skills & Qualifications

- **Java (6 years), C++ (5 years), Python (4 years)**
- **SQL (3 years), JavaScript (3 years), HTML (3 years), C# (1 Year)**
- Windows, macOS, ChromeOS, Unix, Linux, FireOS, Ubuntu Operating Systems
- Visual Studio, Eclipse, MS SQL Server, Git, Git Bash, GitHub, Jira, Confluence, BitBucket, Atlassian, Gerrit, Brazil
- MEAN/MERN Stack, Flutter, Firebase, Flask, Django, MySQL, Blazor, Microsoft .NET, Microsoft Azure
- TensorFlow, Keras, PyTorch, scikit-learn, OpenCV, ROS, pandas, Kaldi

Work Experience

Amazon **May 2023** — Present

Software Engineer Intern

- Reduced **the emission frequency** of metrics for FireTV devices running **FireOS 6** by **75%**
- Redesigned and developed **surround sound** connectivity for Echo Dots on FireOS 8
- Released new software and OS updates to improve WiFi and connectivity for Amazon Devices customers

University of Texas at Austin January 2022 — Present

Robotics and Computer Vision Research Fellow

- Programmed **face id, monocular depth estimation, and navigation** system with ROS to allow the robot to identify individuals, and lead them from source to destination using Tensorflow, OpenCV, and Pandas
- Improved **conflict-based search** algorithm to succeed with constrained environments, social forces, and physics
  - Publication: https://ieeexplore.ieee.org/document/10093969
- Invented **frontier exploration** algorithm and integrated with Boston Dynamics **Spot** (pending publication)
- Formulated 3D/4D reconstruction of **hand-object interactions** from a single image/video (pending publication)

Nelnet May 2022 — Present

Data Science Intern

- Engineered a machine learning model to **predict the churn rate** of the company Allo with a **92%** success rate
- Implemented **random forest** models, data filtering, and dimensionality reduction using pandas and scikit-learn
- Pioneered research into **ChatGPT and LLM** models to improve internal and external communication by **38%**
- Created tool to extract mail, HTML, MIME metadata using custom LLMs designed for automating IT infrastructure

Root Translation January 2022 — January 2023

Full Stack Engineer

- Integrated text to speech for **61 languages** by connecting to **Microsoft Azure Cognitive Services API**
- Separated languages into dialects to account for **121** different regions using C#
- **Improved accuracy** of translations for medical terms by **20%** to prevent misinterpretation of medical procedure

Acmetek Global Solutions June 2020 — August 2021

Artificial Intelligence (AI) Intern

- Developed **chat-bots** using chatter-bot and Python to improve company-customer interaction by **33%**
- Implemented **predictive analysis algorithms** using scikit-learn to estimate sales and costs
- Deployed **full-stack applications** to Azure after connecting front-end and databases with Flask and MySQL

Projects

Automatic Speech Recognition Januray 2023 — May 2023

- Coded a full Mel-Frequency Cepstral Coefficient **(MFCC)** acoustic feature extraction **pipeline**
- Trained a **phoneme classification model** using a custom created hmm-based isolated word recognizer
- Combined pipeline and model with **Kaldi** to create an automatic word/speech recognition system

Chat-Bot & Sales Analyzer June 2020 — December 2020

- Assembled a **chatbot** as an AI intern for Acmetek using Python, HTML, JavaScript, and SQL.
- Built from **scratch** and used to help customers with company products.
- Implemented **predictive analysis** algorithm to analyze trends and propose a marketing plan

Stormbound & AI Research September 2019 — September 2021

- Recreated popular game, **Stormbound**, with Dr. Ruozzi using Python.
- Researched **reinforcement learning** to develop original deep learning algorithms and neural networks
- Programmed **original AI bots** using Python, TensorFlow, Keras, ROCm, and other tools.