




# NISTHA MITRA

 [linkedin.com/in/nmitra28](https://www.linkedin.com/in/nmitra28)  [github.com/nmitra28](https://github.com/nmitra28)  
 [nistha.mitra28@gmail.com](mailto:nistha.mitra28@gmail.com)

## Education

### University of Maryland

*Bachelor of Science in Computer Science*

**Aug. 2018 – May 2022**

*College Park, Maryland*

## Experience

### Oracle Cloud Infrastructure

**July 2022 – Present**

*Speech AI - Software Engineer II*

*Seattle, Washington*

- **Built Medical Dictation Service w/ Realtime ASR:** Implemented using Java/J2EE, HTTP, JSON, WebSockets, and RESTful Web Services; designed the database architecture and implemented features with multi-list/query features and dynamic template loading for medical usecase.
- **Created a Data Pipeline for Model Evaluation:** Enhanced assessment efficiency with optimized data processing frameworks.
- **Developed Data Collection Tool for Audio Data:** Incorporated UI improvements, and data integrity fixes; used for data collection, labeling, filtering, and visualization.
- **Applied Vector DB Technologies:** Implemented text-to-image with Vespa Vector Database and face recognition with Apache Cassandra.
- **Provided 24/7 Production Support:** Ensured continuous operation through on-call rotation for systems and networks.

### Oracle Cloud Infrastructure

**June 2021 – Sept 2021**

*Intern - DS/ML*

*Remote*

- **Customer Tutorial : Data Analysis using OCI :** OCI Services (Object Storage, AutoML and Accelerated Data-science SDK), HTML, CSS, Keras, TensorFlow
  - \* Predicting pneumonia from CT scans using 3D Convulational Neural Network.
  - \* Detecting credit card fraud using AutoML on an imbalanced dataset.

## Research and Publication

### Multi Modal Large Language Model

**December 2023 – Present**

*Oracle Corporation*

*Seattle, Washington*

- Proprietary multi-modal Large Language Model for understanding audio context, giving it Automated Speech Recognition capabilities. [**Submitted for Patent - First Inventor**]

### Research Assistant - Multi-Agent Reinforcement Learning

**Jan 2024 – Present**

*UMD Computer Science Department*

*College Park, Maryland*

- Submitted in the **NeurIPS Conference 2024**  
A library for using curriculum learning to train reinforcement learning agents.

### Co-Author - Big Data Visualiation

**Jan 2021 – May 2022**

*UMD Computer Science Department*

*College Park, Maryland*

- Accepted in the **EuroVis Conference 2023**  
A Comparative Evaluation of Visual Summarization Techniques for Event Sequences.

## Projects

### Autonomous Multi-Agent Systems using LLMs | *Python, Llama-7b, llama.cpp, Hugging Face*

- \* Designed and building autonomous multi-agent systems to execute complex, sequential workflows using locally hosted open-source LLM.

### Fine-Tuning Llama on Medical Dataset | *Python, Llama-7b, Lora, Hugging Face, Transformers*

- \* Fine-tuned llama-7b model to create a chat-bot that is trained on medical data-set to provide educated answers to medical query. Using Quantized Low-Rank Adaptation (Q-LORA) to fine-tune.

### Predicting Viral Pneumonia in Computer Tomography (CT) Scans | *Python, Keras, TensorFlow, 3D CNN*

- \* Used a 3D Convolutional Neural Network to predict lungs scarring on CT scan images of COVID Patients

### Data Science and Visualisation | *Python*

- \* Attendance Prediction : Decision Tree Model Used supervised learning models to analyze 98000 employee data points to predict attendance in various training programs offered by the company.
- \* Black Lives Matter : Analysis