

# ANJALI MUDGAL

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## RELEVANT WORK EXPERIENCE

### Data Consultant

World Bank

Mar 2024 - May 2024

Washington, DC

- **Interactive Coding Assessment:** Designed assessment tools for World Bank's Data Science skill certification program.

### Machine Learning Engineer

Enquire AI

Mar 2023 - Dec 2023

Washington, DC

A paid platform similar to Reddit for matching questions with expert profiles based on their LinkedIn biographies.

- **Predictive Modeling:** Enhanced mean average precision score to 0.94 by **fine-tuning LLM models** (Bert)
- **Prompt engineering:** Developed custom prompts to retrieve database answers for post-training queries. Leveraged text summarization to condense profile details into concise embeddings.
- **Optimizing Search Speed using Vector Database and Redis:** Accelerated profile search speed by 40% through efficient document retrieval, integrating pgvector on Postgres for BERT embeddings to enhance user experience.
- **Advance SQL and Statistics:** Proposed and implemented a novel approach using Mean Average Precision with Common Table Expressions in SQL, boosting correctly matched profiles from 50% to 70%.
- **Model deployment:** Integrated **AWS SageMaker**, simplified architecture, reduced costs, improved performance and stability; devised **profile matching microservice using Elastic Beanstalk** for model re-usability and side revenue.
- **Experimentation:** Setup **Hypothesis Testing, A/B Testing, and statistical analysis** to select **reliable models**.

### Software Engineer (Machine Learning, Mobile)

Samsung Research & Development

Jan 2019 - July 2022

Noida, India

- **Real-time Speed Optimization:** Reduced sensor-to-application **image frame latency by 100ms** for **image processing pipeline** in smartphones, through optimization techniques, significantly enhancing operational efficiency.
- **Custom Mobile Net Architecture:** Reduced **RAM usage from 500MB to 80MB** by developing space-efficient MobileNet for real-time **image segmentation**, enabling bokeh effect in cameras suitable for low-budget smartphones.
- **Mentor, Research and Development:** Actively guided 5 interns, leading to their successful patent filings

## CERTIFICATION

- AWS Certified Cloud Practitioner (CLF-C02)

## PATENT AND PUBLICATIONS

- Mudgal, A., Kush, U., Kumar, A. et al. Multimodal fusion: advancing medical visual question-answering. Neural Comput & Applic (2024). [Link](#) | [View](#) | [GitHub](#)  
Developed a multimodal architecture(vision-language) that interprets radiology images and answers user questions specific to that image, helping patients understand medical findings from their scans.
  - Boosted BLEU and ROUGE scores from 0.12/0.15 to 0.37/0.40 by fine-tuning BLIP and its subcomponents on a medical dataset. Designed custom Multimodal Architecture, achieving BLEU and ROUGE scores of 0.41 and 0.44.
- Authored A2 grade patent with Samsung, "Enhanced Optical Flow Video Stabilization for Multimedia Content", application number 202211062410.
- "Pushkar Pathak, Ashish Chopra, Bhanu Mahto, Anjali Mudgal (2022), 'Context-based Video Stylization,' International Journal of Electrical, Electronics, and Data Communication (IJEEDC), pp. 26-30, Volume-10, Issue-10." [Link](#)

## TECHNICAL PROJECTS

- **Mindful Tweet Hub** Accelerated real-time **search speed to 10ms** by creating **vector similarity index using Hierarchical Navigable Small World(Faiss HNSW) on BERT embeddings** for similar tweet matching. [GitHub](#)

## EDUCATION

**Master of Science in Data Science**, The George Washington University (GPA: 4.00/4.00)

Aug 2022 - May 2024

Relevant Coursework: Machine Learning, Deep Learning, NLP, Linux for DevOps, Time Series Forecasting

**Bachelor of Technology in Communication & Computer Science**, LNMIIT

Aug 2015 - May 2019

## TECHNICAL SKILLS

**Programming Languages**

**Libraries & Frameworks**

**Technologies & Tools**

**Cloud Services**

Python, SQL, PostgreSQL, C++, R, JAVA, MATLAB, Streamlit, Spark

TensorFlow, Pytorch, Pandas, Transformer, Spacy, pgvector, Matplotlib, Sklearn

GitHub, LLM, Tableau, Docker, CI/CD pipeline, Hadoop, Airflow

AWS-Elastic Beanstalk, AWS-S3 buckets, AWS-EC2, AWS SageMaker, GCP