UJWAL KALUVAKOLANU THYAGARAJAN

ujwal.io | ujwal.kct@gmail.com | LinkedIn | GitHub | YouTube

Education

University of California Davis — Davis, CA
Master of Science in Computer Science, GPA: 4.0/4.0 — *June 2025*

Osmania University — Hyderabad, India
Bachelor of Engineering in Information Technology, CGPA: 8.75/10 — *April 2019*

Relevant Courses: *Data Structures and Algorithms, Object-Oriented Design, Operating Systems, Distributed Systems, RDMS*

Technical Skills

Programming Languages: Java, Python, C#, JavaScript/TypeScript, HTML/CSS3, SQL, NoSQL
Web Development Frameworks: Angular, React, Next.js, .NET Core, Django, Spring boot, GraphQL
Cloud & Infrastructure: AWS (EC2, RDS, Lambda, S3, ELB, SNS, SQS, EKS, API Gateway, CloudFront, CI/CD)
Development & DevOps Tools: Git, Unix, Docker, Kafka, Kubernetes, Jenkins
Databases: MongoDB, PostgreSQL, MySQL, MSSQL, DynamoDB

Experience

University of California — Davis, CA
Graduate Student Researcher — *August 2023 – Present*

- Developed and optimized Graph Neural Network (GNN) models in PyTorch and DGL for visualizing and analyzing EHR data, improving cancer survival prediction accuracy by 15%.
- Engineered AI-driven interpretability techniques for GNNs using graphlet frequencies and surrogate models, leading to a research paper submission at ACM KDD 2025.

Lead Teaching Assistant — *January 2023 – Present*

- Guided 120 computer science students through Mobile Development (iOS and Android) and Software Development Life Cycle phases for Senior Project course. Fostered problem solving skills and managed system design, front-end and back-end code reviews.

Graduate Student Researcher — *September 2022 – August 2023*

- Orchestrated and developed an innovative end-to-end AI training pipeline to annotate the LexisNexis press release data using Python, Google Scripts, AWS Lambda, API-Gateway, and RDS PostgreSQL, slashing the annotation time by 30%.
- Researched a huge corpus of press release data to effectively process acquisition headlines using machine learning and large language models like GPT-4. Achieving an accuracy of up to 87% for business intelligence analysis.

Deloitte — Hyderabad, India
Software Engineer 2 — *July 2019 – July 2022*

- Designed backend microservices for migrating Tax R&C workflows from a legacy monolith to a cloud-native architecture for a top e-commerce client, enabling 20K+ workflows, 180K+ human tasks, and 25K+ machine tasks. Boosted customer satisfaction by 40% using Java, Spring Boot, DynamoDB, AWS EC2, ELB, Kinesis, S3, and CodePipeline.
- Created an advanced data analytics dashboarding tool for a prestigious fintech client by utilizing Python, Django, Alteryx, and TensorFlow, resulting in a 25% increase in quantitative accuracy for business value visibility.
- Developed a full stack permission and user data management web application for an internal SaaS tool for a highly reputable external client using Java, Spring Boot, Angular, Python, PostgreSQL, Docker, Kafka, Kubernetes and AWS, improving product management efficiency by 20%.
- Improved payment ease by 20% through the agile development of a cross-functional application with restful services for a tax payments and obligations application using React, .NET Core, C#, Docker, AWS.
- Reduced 1500 hours/year in data management for Contract Analysis and Extraction by Crafting a Named Entity Recognition AI Model (BiLSTM-CNN-CRF) in Python, and TensorFlow.
- Automated the Invoice Recognition System by customizing a Faster RCNN integrated with Tesseract OCR along with feedback training loop using Python, PyTorch and Jenkins reducing 800 hours/year in data management.

Graduate Projects

High-Performance Large-Scale Recommendation System Optimization | *Python, PyTorch, CUDA, Docker*

- Spearheaded development of a high-performance prototype for large-scale machine learning recommendations, achieving 500ms training speedup and improved GPU utilization across diverse datasets via horizontal model slicing using heterogeneous memory, non-sparse index cache embedding, and multi-GPU parallelism.

AI Nutrition and Dietary Information | *Python, BERT, InstructBlip, Git*

- Implemented a BERT model based InstructBlip system to predict food ingredients from images, resulting in a 3% enhancement in Intersection over Union (IoU) compared to state-of-the-art deep learning models.

VLM Evaluation Suite | *Python, InstructBlip, Git*

- Finetuned InstructBLIP-FLAN-T5, InstructBLIP-Vicuna, CLIP, and custom ResNet encoder-attention LSTM decoder models with SPICE, CIDEr, and SPIDEr metrics to assess image captioning performance.