MADAN BADUWAL

Machine Learning Engineer · Software Architect

LinkedIn | Palo Alto, CA | Website | (432) 316-1183 | GitHub | madanbaduwal100@gmail.com | LeetCode

Key achievement: Engineered a student status engine in FuseClassroom for 60 colleges and 20k students in Nepal and USA.

INDUSTRY EXPERIENCE

Sr. Machine Learning Engineer | Matrice.ai | Chicago, IL — Nov 2022 - Feb 2023

- Led, designed, and developed a no-code data-centric AI platform (Matrice.ai) for building and deploying ML apps, reducing user deployment time by 40% and development costs by 80% using PyTorch, React, Django, and AWS.

Sr. Machine Learning Engineer | BP Eye Foundation | Kathmandu, Nepal — May 2022 - Nov 2022

- Developed an ML app as a SaaS product for 5+ hospitals, using PyTorch, Django, CI/CD, and Dell EMC servers.
- Optimized and automated instance segmentation (accuracy 85%) for otitis media Otoscopy images of the tympanic membrane using CNN, driving $100k of revenue annually by increasing the doctor-patient ratio by 1.5x.

Machine Learning Engineer | Fusemachines | New York, NY — Feb 2020 - Feb 2022

- Led a 10-person team to develop an AI-enabled student progress tracking platform (fuseclassroom.com), increasing the teacher-student ratio by 2x. Currently operational in ∼60 Nepalese colleges with 20k active students.
- Orchestrated a phishing detection engine for over 10 clients under WMC Global, improving accuracy from 85% to 90% by selecting the optimal number of clusters using the silhouette score, detecting millions of URLs per day.
- Delivered over 20+ trainings, workshops, knowledge-sharing, and paper reading sessions on mathematics and machine learning. Empowered the ML skills of ∼5k students by collaborating with schools, colleges, and universities.
- Enriched affordable AI courses by researching, designing, reviewing, and refining content, including reading material, quizzes, assignments, and projects for Fusemachines AI Education Programs, focusing on AI, ML, CV, and NLP.

Computer Vision Engineer (R & D) | National Innovation Center | Kathmandu, Nepal — Jan 2021 - Dec 2021

- Led & collaborated with mechanical, electrical, and electronic hardware teams to deploy computer vision tasks in robots, resulting in the creation of initial prototypes for waiter and service robots within 9 months.
- Achieved 60% inference acceleration on computer vision tasks integrating into robots using quantization techniques and hardware-software accelerators like Google Coral TPU, NVIDIA J.Nano, Raspberry Pi., and Microsoft Azure.
- Implemented and fine-tuned computer vision tasks, including object detection, segmentation, tracking, face recognition, and depth estimation, using PyTorch and the Intel depth camera D435i, covering the entire vision pipeline.

Software Engineer Intern | Omnibluetech | Kathmandu, Nepal — Aug 2019 - Feb 2020

- Devised and architected Django REST APIs and AWS-based background workers capable of managing millions of daily requests, facilitating third-party entities in extracting data from unstructured documents in a scalable fashion.
- Engineered web applications using front-end and back-end technologies: HTML5, CSS, JavaScript, and Django for retail stores and consultancies, resulting in a 15% increase in revenue for the company in the first quarter.

RESEARCH EXPERIENCE

Graduate Research Assistant | University of Texas Permian Basin | Odessa, TX — Jan 2024 - Dec 2024

- Conducted research in polyp segmentation, focused on optimizing and fine-tuning advanced models such as YOLO8, U-Net, Detectron, SAM, MASK-RCNN, and OneFormer to improve accuracy and performance.
- Optimized and fine-tuned state-of-the-art multimodal models, including OpenAI's CLIP, MMBT, VL-BERT, ViLBERT, LXMERT, ALIGN, VisualGPT, UNITER, BLIP, Flamingo, LLaVA, LaMDA, and mPLUG.

Undergraduate Student Assistant Editor | University of Texas Permian Basin | Odessa, TX — Mar 2023 - Dec 2024

- Refined the editing and proofreading of the UTPB Journal of Undergraduate Research, Volume 5, 2023, and the UG Research Book 2024 for publication under the direction of Prof. Rebecca Babcock and Prof. Mohamed K Zobaa.

SKILLS

Languages	Python 3, R, Julia, C++, C, Java, JavaScript, C#, Go, Kotlin, Flutter, Rust, Bash, MATLAB, LaTeX, SQL
Packages	PyTorch, TensorFlow, JAX, Scikit-learn, NumPy, Pandas, Matplotlib, Scipy, OpenCV, NLTK, Hugging Face
Databases	Spark, Hadoop, PostgreSQL, MySQL, MongoDB, Snowflake, Databricks, Kafka, Tableau, PowerBI, ETL
Frameworks	Django, Node, Angular, React, React Native, Unity, Streamlit, Flask, Android Studio, RESTful API, ROS
DevOps	Git, GitHub, DVC, MLflow, SageMaker, Docker, Kubernetes, Jenkins, Airflow, Datadog, AWS, GCP, Azure
Miscellaneous	Agile, Confluence, Jira, Lambda, RabbitMQ, Redis, Ansible, ElastiCache, Elasticsearch, Selenium

EDUCATION

University of Texas Permian Basin | MS in Computer Science | Odessa, TX GPA: 4.0/4.0, Top 1% — Exp. Dec 2024

Projects: madanbaduwal.github.io/projects | Achievements and certificates: madanbaduwal.github.io/cv | Publications: Google Scholar