

Manish Gawali

Portfolio Google Scholar (7 research papers, 60+ citations)

Email : gawali@usc.edu
Mobile : +1-(213)-574-6099

EDUCATION

- University of Southern California** Los Angeles, CA
Master of Science in Computer Science; GPA: 3.86/4.0 May 2022 – Dec 2023
- Pune Institute of Computer Technology** Pune, India
Bachelor of Engineering in Computer Science; GPA: 9.20/10.0 Aug. 2014 – May 2018

FULL-TIME WORK EXPERIENCE (4 YEARS)

- DeepTek Medical Imaging Pvt Ltd.** Pune, India
Senior Data Scientist (Tech Lead) Aug 2020 - Mar 2022
 - Research:** Published 7 research papers in reputed conferences and journals. Proposed a novel distributed deep learning method (*SplitFedv3*) and a novel distributed training approach (*Alternate mini-batch training*) in the [research paper](#).
 - Development (Vision):** Developed 10+ deep learning models for detection of multiple pathologies and productionized them. Designed pipelines for image classification, segmentation (UNET), object detection (Mask-RCNN and YOLO architectures), anomaly detection algorithms (OneClassSVM and AutoEncoders), generative algorithms (GANs and VAEs).
 - Medical Text Analysis for Clinical Insight Extraction:** Fine-tuned the BioBERT architecture on a dataset from multiple hospitals to extract and categorize symptoms, anatomical sites, and diseases from unstructured clinical notes.
- AlgoAnalytics Pvt. Ltd.** Pune, India
Associate Consultant (Deep Learning) Jan 2020 - Jul 2020
 - Signature Generation:** Developed a novel variant of DCGAN (Deep Convolutional Generative Adversarial Network) architecture for generating handwritten signatures using the GPDR-960 handwritten dataset.
 - Virtual Try-On:** Implemented a multi-stage CNN-based deep learning method for [Virtual Try-On](#) and deployed it.
 - Title Generation for Research Papers:** Leveraged the Transformer-based GPT-2 architecture and trained it on the arXiv dataset containing academic papers across various fields and [deployed](#) it.
- Veritas Technologies LLC** Pune, India
Associate Software Engineer Jul 2018 - Dec 2019
 - Enterprise Vault & Compliance/Discovery Accelerator:** Developed multiple features like Auditing Enhancements, Cloud-SQL, Hotword Statistics, Hotword, and Hotword Set Facet.
 - POCs, Bug Fixes, Optimization:** Contributed to 8 winning POC's and rectified 30+ bug fixes. Optimized legacy code to increase the speed of operations like archiving e-mails and file shares by 20%

INTERNSHIP AND UNIVERSITY RESEARCH EXPERIENCE

- Amazon** New York City, NY
Applied Scientist Intern Sept 2023 - Present
 - Product Relationship:** Fine-tuning LLMs like XLM-RoBERTa and FLAN-T5-XXL to determine relationships.
 - Synthetic Data Generation for Cold Start Problem:** Prompt Engineering to generate missing data, pseudo labels, and new product information using LLMs.
 - Noisy Learning:** Developing a novel method to learn from noisy synthetic data and data based on outdated guidelines.
- vITAL Lab and Radiomics Lab, University of Southern California** Los Angeles, CA
Graduate Research Assistant May 2022 - Present
 - Effective Aggregation of Weights in Federated Learning (FL):** Developed an adaptive weighing scheme which uses information from client model updates and determines aggregation weight for that client.
 - Bone Metastasis:** Leveraged ViT (Vision Transformer) for segmentation of bone lesions.
- GSLab** Pune, India
Machine Learning Intern Aug 2017 - Mar 2018
 - Developed Chatbot for Automated Customer Service for cutting costs by eliminating need of human intervention.
 - Built the backend machine learning & natural language processing pipeline using concepts like TF-IDF, Clustering, and Cosine similarity to help agents deliver better customer support achieving an accuracy of 82%.

PROJECTS

- Paper Grading using Transformers | Technologies: Python, Google Cloud:** Created a framework to grade handwritten student answers using Google's Cloud Vision API for handwriting recognition and an NLP pipeline with BERT encoder to calculate grades on semantic similarity to model answers.

PROGRAMMING SKILLS

- Languages:** Python, Java, Javascript, Typescript, C, C++, C#, Embedded C, SQL
- Libraries:** Tensorflow, Keras, PyTorch, OpenCV, Pandas, NumPy, Scikit-Learn, Gensim, spaCy, NLTK, p5.js, React.js, Redux
- Frameworks:** Langchain, Hugging Face, Flask, .NET, AWS, Azure
- Developer Tools:** Git, Docker, GCP, AWS, IntelliJ, VS Code, Visual Studio, PyCharm, Eclipse, Android Studio