Abhi Lad

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EDUCATION

Columbia University New York, NY
M.S. in Computer Science, **GPA: 3.58/4.0** Exp Dec 2023
- Courses: Artificial Intelligence, Machine Learning, Natural Language Processing, High Performance ML

Pandit Deendayal Energy University Gandhinagar, India
B.S. in Computer Science, **GPA: 9.89/10.0** Jul 2020
- Courses: Data Structures, Algorithms, Intro to Databases, Object Oriented Programming, Web Development
- Honors: Gold Medal, Merit Award

TECHNICAL SKILLS

Programming: Python, Javascript, C++, C, HTML, CSS, SQL, PHP, LaTeX
Frameworks: PyTorch, TensorFlow, Keras, Scikit-learn, OpenCV, XGBoost, Numpy, Pandas, jQuery
Developer Tools: AWS, Google Cloud Platform, Jupyter, Neptune.ai, Git, PostgreSQL, Linux

PROFESSIONAL EXPERIENCE

Origin Health Bangalore, India
Research Engineer Jun 2021 – Jul 2022
- Built a deep learning causal inference engine for prenatal ultrasound screening with expert 93% agreement rate
- Designed data augmentation techniques increasing segmentation performance by upto 23% for unseen USG devices
- Developed interactive visualization tool to analyze and benchmark 20+ AI models and 4M+ images
- Spearheaded and published a study in SPIE on segmentation of 11 fetal brain structures in a multi-domain scenario
- Led a team of 5, managed task allocation for clinical validation pilot presented at FMF'22 Greece in 2 month timeline

Kontiki Vision Labs Bangalore, India
Computer Vision Engineer Feb 2021 – May 2021
- Translated existing codebase from PoseNet to Blazepose pose detection model resulting in 20% increase in fps
- Formulated heuristic approaches for tracking 50+ convoluted exercise poses from body landmark points
- Proposed a method for equivalent scaling of pose landmarks in virtual 2D space for online competitive exercise

Institute of Seismological Research Gandhinagar, India
Research Intern Jun 2019 – Aug 2019
- Utilized Neural Network, SVM, Random Forest models to predict timeseries ground water level with 80% accuracy
- Processed data using PCA, Linear/Spline Interpolation and reduced dimensionality and sparseness of data

PROJECTS

Kidney and Tumor Segmentation Challenge (MICCAI) Aug 2021 - Sep 2021
- Reduced training time from 40 to 6 mins/epoch using NVIDIA Clara and patchwise data processing pipeline
- Created custom 3D U-Net with attention layers using MONAI framework increasing dice score by 39%
- Translated 3D data augmentation functions from TorchIO to Pytorch, eliminating data format constraints

Voice and Image Recognition based Alzheimer's Conversation Assistant Mar 2021- Apr 2021
- Developed a conversation assistant with quizzing feature using TensorFlow & Chrome TTS for Dementia patients
- Integrated AWS Rekognition facial identification and guide patients in identifying entity with audio cues
- Presented demo among top 5 finalists at Aging Better with ICTs (WSIS-GCOA)

Multitask Learning & CNN based Image Reconstruction from fMRI Jan 2020 - Oct 2020
- Designed a multitask training approach, improving image correlation winning % to 81% from 78% of SOTA
- Built GAN based image generator models and evaluated generalizability using input layer feature perturbation
- Performed literature survey, published research at GUCON'21 and invited for special issue Journal article

SELECT PUBLICATIONS

- Improving Wheat Head Detection: A Data-Centric Approach by Domain Variance Reduction. 37th ACM-SAC 2022
- Leveraging Clinically Relevant Biometric Constraints to Supervise a Deep Learning Model. 18th IEEE ISBI 2022
- Perceptual Variation Stacking: Test Time Augmentations in Endoscopy Image Segmentation. 36th IEEE IVCNZ 2021