

SURYA TEJA DEVARAKONDA

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PROFESSIONAL EXPERIENCE

Enlitic, Inc, San Francisco

July 2019 – Present

Deep Learning Research Engineer

- Built novel deep learning solutions for Chest X-ray Triage of over 50 abnormalities on a billion images, achieving average AUCs around 0.85. Significantly improved model interpretability using calibration, custom attribution maps, and uncertainty estimation. Trained in a semi-supervised framework handling noisy labels, high class imbalances, class hierarchy priors, and high variability in image quality and abnormality properties like scale and location.
- Leading a project to standardize multi-view XR images of body regions, critical for data pipelines in all down-stream products. Developed hybrid rule-based and CV systems, exploiting graphical relations among labels, and achieved high performance on internal test datasets.
- Led the effort to develop end-to-end model development and deployment pipelines, supporting both Tensorflow and Pytorch, which streamlined and significantly reduced research-to-production timeframes for all projects.

GE Healthcare, Waukesha, Wisconsin

June 2018 – Aug 2018

Machine Learning Research Intern

- Achieved a test AUC of over 0.99 with a Chest X-Ray projection classification model on the NIH dataset using a modified densenet implemented in Tensorflow. Obtained strong qualitative performance w.r.t. gradcam activation map analysis.
- Out-performed the best industry offering, while also decreasing per-image single core inference time by 7 times, in high resolution Single Energy Chest X-Ray Bone Suppression, using image-to-image translation models based on Dilated Densenets and Conditional-GANs, trained with a custom multi-scale SSIM based loss function, in Tensorflow.

SELECTED PUBLICATIONS

FLARe: Forecasting by Learning Anticipated Representations

Surya Teja Devarakonda, Joie Yeahuay Wu, Yi Ren Fung, Madalina Fiterau

Machine Learning for Healthcare Conference (MLHC), 2019, 53-65

Amplitude-scan Classification using Artificial Neural Network

Kunal K. Dansingani, Kiran Kumar Vupparaboina, Surya Teja Devarakonda, Soumya Jana, Jay Chhablani, and K. Bailey Freund

Scientific Reports (Nature), 2018, 8(1), p.12451

A convolutional neural network approach for abnormality detection in wireless capsule endoscopy

Anjany Kumar Sekuboyina, Surya Teja Devarakonda, Chandra Sekhar Seelamantula

International Symposium on Biomedical Imaging (ISBI), 2017, 1057-1060

EDUCATION

Masters of Science, Computer Science

Sept 2017 – May 2019

University of Massachusetts Amherst

GPA: 4.00/4.00

Coursework: Advanced Machine Learning, Probabilistic Graphical Models, Databases, Reinforcement Learning

Bachelor of Technology (Honors), Electrical Engineering

Aug 2013 – May 2017

Indian Institute of Technology Hyderabad

SELECTED PROJECTS

Alzheimer's Disease Trajectory Forecasting using Multimodal Longitudinal Data

Oct 2018 - May 2019

- Developed a novel approach for Alzheimer's onset forecasting, achieving an accuracy of around 0.80 on predictions upto 2 years into the future, while improving robustness compared to SOTA models.
- Published as a conference paper at MLHC, 2019, detailing the multi-task model based on LSTMs and autoencoders, using longitudinal MRI data, structured covariates, and cognitive assessments from ADNI dataset, implemented in Pytorch.

Ultrasound Image Segmentation and Classification of Thyroid Nodules

Jan 2018 - Apr 2018

- Achieved 0.85 average dice score in segmenting thyroid nodules in 3D ultrasound volumes for cancer risk characterization. Implemented a modified UNet in Tensorflow, and enhanced outputs using conditional random fields.
- Work done in collaboration with the MGH/MIT Center for Ultrasound Research and Translation at MGH, Boston.

TECHNICAL SKILLS

Machine Learning, Computer Vision, Natural Language Processing, Tensorflow, Pytorch, Keras, OpenCV, Python, AWS, SQL

ACTIVITIES

Reviewer, Machine Learning for Healthcare Conference (MLHC) 2020