Chinmay Savadikar

csavadi@ncsu.edu | savadikarc.github.io | savadikar-chinmay | savadikarc

Research Interests

Continual Learning, Efficient Deep Learning, Dynamic Neural Architectures

Education

MS+PhD, North Carolina State University Aug. 2021 – Present
Department of Electrical and Computer Engineering
Advisor: Dr. Tianfu Wu

Bachelor of Engineering, University of Pune Aug. 2014 – May 2018
Electronics and Telecommunication Engineering

Employment History

North Carolina State University May 2022 – Present
Graduate Research Assistant
Advisor: Dr. Tianfu Wu

- Research on Continual and Efficient learning for visual data using deep neural networks.

Precision Sustainable Agriculture, NC State University Dec. 2021 – Aug. 2022
Graduate Student Researcher
Mentor: Dr. Søren Kelstrup Skovsen

- Created an image stitching pipeline using Metashape Python API and packaged the code using Docker
- Developed algorithms for automated deduplication of bounding box detections for semi-supervised crop image annotations

Persistent Systems Ltd.
Senior Software Engineer, Machine Learning Apr. 2021 – Jun. 2021
Software Engineer, Machine Learning Mar. 2019 – Mar. 2021
Intern, Machine Learning Jul. 2018 – Mar. 2019

- Trained Deep Learning models for detecting Tumor Cells from microscopic blood scan images
- Increased the Recall by 29.9% and reduced the False Positive Rate by 62.87% over commercial software
- Trained Multimodal Image and Text models for large scale Document Recognition (500+ categories), with an F1 score of 0.97
- Helped set up MLOps frameworks for versioning and deploying models
- Authored Python SDKs for stardardized model training and evaluation

Publications

GIFT: Generative Parameter-Efficient Fine-Tuning
Chinmay Savadikar, Xi Song, Tianfu Wu
ArXiv, 2023
https://arxiv.org/abs/2312.00700

Continual Learning via Learning a Continual Memory in Vision Transformer
Chinmay Savadikar, Michelle Dai, Tianfu Wu
ArXiv, 2023
https://arxiv.org/abs/2303.08250

Towards Designing Accurate FISH Probe Detection using 3D U-Nets on Microscopic Blood Cell Images
Chinmay Savadikar, S. Tahvilian, L. Baden, R. Reed, D. Leventon, P. Pagano, B. Garware
CODS-COMAD 2020
https://doi.org/10.1145/3371158.3371201

Brain Tumour Segmentation Using Probabilistic U-Nets
Chinmay Savadikar, Rahul Kulhalli, Bhushan Garware
MICCAI Brainlesion Workshop 2020
https://doi.org/10.1007/978-3-030-72087-2_22

A Hierarchical Approach to Skin Lesion Classification
Rahul Kulhalli*, Chinmay Savadikar*, Bhushan Garware
CODS-COMAD 2019
https://doi.org/10.1145/3297001.3297033

Projects

Document Recognition Platform | *Persistent Systems Ltd.* Aug. 2020 – Jun. 2021

- Trained joint image and text Deep Learning models for document classification into 500+ categories, with an F1 score of 0.97
- Developed MLOps pipelines for model versioning and deployment to AWS SageMaker
- Created scripts for distributed image and text data processing using PySpark for ∼350,000 data points
- Improved team collaboration by creating Python SDKs for distributed model training and evaluation

Tumor Cell Detection | *Persistent Systems Ltd.* Mar. 2019 – Mar. 2020

- Developed Image Processing algorithms for accurate cell segmentation from microscopic blood scan images
- Trained Deep Learning segmentation models for detecting chromosomes in 3D blood scan images
- Reduced false positive rate by 62.87%, increased recall from 72.9% to 94.72% over the commercial software
- Built a fast prediction framework for ∼300k images using multi-GPU and multiprocessing parallelism

Technical Skills

Programming: Python, MATLAB, C++
Libraries: TensorFlow, PyTorch, Horovod, scikit-learn, NumPy, OpenCV, MLflow, PyTest
Data Processing: PySpark (Spark), Pandas, SQL
Tools: Docker, Git, JIRA, AWS Sagemaker, Databricks