Dharmashloka Debashis

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EDUCATION

Georgia Institute of Technology (Georgia Tech) **Aug 2020 – Dec. 2021 (expected)**
MS in Computer Science, Specialization in Machine Learning | GPA: **4.0**/4 *Atlanta, Georgia*

- **Courses:** Artificial Intelligence, Data and Visual Analytics, Data Management & ML, Qualitative methods for HCI, Machine Learning*, Advanced Algorithms*, Information Security*

Indian Institute of Technology Bombay (IIT Bombay) **Jul. 2013 – Jun. 2018**
Bachelor & Master of Technology in Electrical Engineering | GPA: **8.47**/10 *Mumbai, India*

- **Relevant Courses:** Machine Learning, Computer Vision, Computer Graphics, Image Processing, Medical Image Processing, Speech Processing, Advanced Topics in Signal Processing, Neuromorphic Engineering
- **Master's thesis:** Deep Multiple-Instance Learning for Histopathology Image Classification

EXPERIENCE

Samsung R&D Institute *(full-time job)* **Jul. 2018 – Sep. 2020 (2 years 2 months)**
Senior Software Engineer (Research) | Visual Understanding, Advanced Technology Lab *Bangalore, India*

- Developed deep neural networks to achieve low-power real-time on-device vision solutions (Object Detection, Instance Segmentation, Few-shot Image Classification) for Samsung flagship smartphones
- Trained the Object Detector for AI Gallery and Scene Optimizer engine that led Samsung Galaxy S10 to have the highest **DxOMark score of 113**, on any mobile-phone camera at the time of launch
- Developed a priorbox-free extreme-points object detector as the first stage for a Semantic Instance Segmentation pipeline
- Designed a novel attention-based architecture for Semantic Instance Segmentation from extreme points that achieved SoTA mean IoU on PASCAL VOC dataset

Master's Thesis | IIT Bombay **Jul. 2017 – Jun. 2018 (1 year)**
Topic: Deep Multiple-Instance Learning for Histopathology Image Classification *Advisor: Prof. Amit Sethi*

- Experimented with different two-stage & one-stage DNNs for semi-supervised classification of cancer subtypes
- Designed a fully-convolutional neural network based approach that yielded a SoTA four-fold validation accuracy of 94.3% on the Bisque breast cancer dataset (earlier SoTA was 87.9%)

National Chung Cheng University, Taiwan **May 2016 – Jul. 2016 (3 months)**
Summer Intern | Digital Signal Processing Lab *Advisor: Prof. Wen-Nung Lie*

- Developed a system using OpenCV library in C++ to estimate inter-vehicle distance in real-time
- Achieved 99.14% accuracy for front vehicle shadow-under-the-car position determination in the image

KEY ACADEMIC PROJECTS

Semi-Supervised Image Labelling with Affinity Coding | Data Management & ML **Fall, 2020 | Georgia Tech**

- Proposed a novel way to label images by clustering using a GAN Mixture Model using similarities between images as features
- Achieved an 18.6% improvement over GOGGLES (2020 ACM SIGMOD paper) on the CUB-200-2011 dataset

Understanding News Sources using NLP | Data & Visual Analytics **Fall, 2020 | Georgia Tech**

- Trained a 25-class news topic classifier based on ULMFiT on our own web-scraped full-articles data and achieved 83% accuracy
- Combined news-topics with NER (using Spacy library) to compare news sources by creating interactive visualizations using D3

Automatic Multi-row Panorama using ProSaC | Computer Vision **Spring, 2017 | IIT Bombay**

- Achieved ~10x speed improvement over RanSaC while finding homography by progressively choosing high-quality SIFT features to maximize the number of inliers

Movie Recommendation System | Machine Learning **Fall, 2016 | IIT Bombay**

- Developed movie recommendation systems using memory-based and SVD-based collaborative filtering and alternate minimization techniques on the MovieLens dataset

SKILLS

Programming/Scripting Languages: Python, C/C++, MATLAB, JavaScript
Software Packages: PyTorch, Caffe, Keras, TensorFlow, D3.js, SQLite, Spark

*Currently enrolled (Spring-2021)