

Chinmay Talegaonkar

Seeking Research Engineer roles in Machine Learning and Computer Vision

EDUCATION

UNIVERSITY OF CALIFORNIA LOS ANGELES

MS IN ECE | 2019-2021

GPA: 4.0 / 4.0

Specialization: Signals and Systems

Advisor: Prof. Achuta Kadambi

IIT BOMBAY

B.TECH. IN EE | 2015-2019

GPA: 9.07 / 10.0

Minor in Computer Science

TECHNICAL SKILLS

Programming Languages:

C & C++, Bash, Python, MATLAB, CUDA

Machine Learning Frameworks:

Pytorch, OpenCV, scikit-learn, numpy, scipy, pandas

Development Tools:

Github, Jenkins, Google Cloud, Docker

COURSEWORK

Advanced ML and Deep Learning

Digital Signal Processing

Data Mining

Matrix Analysis

Stochastic Processes

Computational Imaging

Learning Machines

Optimization Techniques

Medical Image Processing

Advanced Image Processing

Reinforcement Learning

Probability and Random Processes

Data Structures and Algorithms

Operating Systems

AWARDS AND HONORS

• GuruKrupa Fellowship 2020

Fellowship for UCLA student researchers

• South East Asia Machine Learning

Summer School 2019

(100/1100 applicants selected)

CONTACT DETAILS

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EXPERIENCE

AKASHA IMAGING | SENIOR DEEP LEARNING ENGINEER

May 2021 - Current | Palo Alto, CA

- Implemented an E2E deep learning and 3D geometry based multi-view pose estimation pipeline for industrial automation use-cases
- Achieved *millimeter* level accuracy, and 99% reliability on automotive parts, resulting in the company's *first product order*
- Devised a keypoint detection approach *robust* to rotational symmetry
- Developed a *sim2real* synthetic data export pipeline for training image segmentation and keypoint detection models
- Contributed to in-house infrastructure development for ML Ops, CI/CD testing, 6-DOF pose evaluation and real data collection
- Executed imaging experiments for *camera calibration* and *HDR capture*

NVIDIA | DEEP LEARNING SOFTWARE INTERN

June 2020 - Sept 2020 | Santa Clara, CA

- Implemented a linearized thread launching algorithm resulting in over 30% speedup for 3D convolutions with low channel counts
- Enabled complex valued convolution kernels in CUTLASS achieving more than 90% compute resource utilization

NVIDIA | AI/ML COMPUTE DEVTECH INTERN

May 2018 - July 2018 | Bangalore, India

- Developed CUDA kernels for optimizing routing layer and back-propagation in capsule networks using PyTorch
- Parallelized end-to-end implementation of DBscan using CUTLASS and thrust libraries for NVIDIA Rapids platform

RESEARCH PROJECTS

DISCOVERING PHYSICAL LAWS FROM VIDEOS

May 2019 - May 2020 | Guide: Prof. Achuta Kadambi, UCLA ECE

- Combined a self supervised encoder-decoder architecture with *genetic programming* and object detection using *mask-RCNN* to obtain accurate equations for a variety of physics tasks from unlabeled video streams

CAUSAL AND CONTROLLABLE GENERATIVE MODELING

Sept 2020 - March 2021 | Guide: Prof. Aditya Grover, UCLA CS

- Devised a semi-supervised, data efficient algorithm for latent space manipulation of pre-trained generative models. The method allows modifying the generated data based on a user-specified causal graph

CONTACTLESS HEART RATE ESTIMATION FROM FACE VIDEOS

March 2020 - June 2020 | Visual Machines Group, UCLA

- Used optical flow and PCA to obtain head motion trajectory to extract the heart beat waveform with medical grade accuracy [code]

PUBLICATIONS

- [1] P. Chari, C. Talegaonkar, Y. Ba, and A. Kadambi. Visual physics: Discovering physical laws from videos. *CVPR Tutorial*, 2020.
- [2] C. Talegaonkar, P. Khirwadkar, and A. Rajwade. Compressive phase retrieval under poisson noise. *ICIP*, 2019.
- [3] C. Talegaonkar and A. Rajwade. Performance bounds for tractable poisson denoisers with principled parameter tuning. *GlobalSIP*, 2018.