

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

Frameworks:

Pytorch • Pyro • CUDA • OpenCV

Development Tools

Git • Slurm • Jenkins • JIRA

Teaching Experience (UCLA)

Reinforcement Learning • Software Lab

COURSEWORK

GRADUATE

Deep Learning

Data Mining

Learning Machines

Matrix Analysis

Computational Imaging

UNDERGRADUATE

Optimization Techniques

Advanced Machine Learning

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

LinkedIn:// chinmay0301

Email:// chinmay0301@ucla.edu

Homepage:// chinmay0301.github.io

Phone:// 424.440.9607

Github:// chinmay0301

EXPERIENCE

NVIDIA | DEEP LEARNING SOFTWARE INTERN

June 2020 - Sept 2020 | Santa Clara, CA

- Developed CUDA kernels to optimize backpropagation in 2D and 3D convolution layers in popular CNN architectures
- Implemented a linearized thread launching resulting in over 30 % improvement 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
- Used mixed-precision training and obtained a 2x speed-up
- Parallelized end-to-end implementation of DBscan using CUTLASS and thrust libraries for NVIDIA Rapids platform

RESEARCH

VISUAL MACHINES GROUP UCLA | RESEARCHER

May 2019 - May 2020 | Guide: Prof. Achuta Kadambi

- Investigated the task of discovering physics expressions from video streams with minimal prior assumptions
- 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

KEY PROJECTS

CONTACTLESS HEART RATE ESTIMATION FROM FACE VIDEOS

March 2020 - June 2020 | Visual Machines Group, UCLA

- Used optical flow to obtain head motion trajectory and PCA followed by Fourier analysis to extract the heart beat waveform
- Achieved medical grade accuracy on the PURE dataset [code]

SYMMETRY AWARE PRUNING FOR COMPRESSING AUTOENCODERS

March 2020 - June 2020 | Course Project

- Devised a hardware friendly network compression approach using low rank approximation of concatenated encoder and decoder matrices
- Obtained 26% improvement in weight matrix compression [code]

FULLY CONVOLUTIONAL NETWORKS FOR PHOTOMETRIC STEREO

March 2019 - April 2019 | Self Project

- Implemented a siamese network based architecture for Photometric Stereo and evaluated its performance on the DiLiGenT dataset
- Improved reconstruction by 8 % using dilated convolutions [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.