CHINMAY TALEGAONKAR

Graduate student | **Department of Electrical and Computer Engineering, UCLA**

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EDUCATION

University of California Los Angeles

2019-21 Los Angeles

- Masters in Electrical and Computer Engineering specializing in *Signals and Systems*
- Research Advisor: Prof. Achuta Kadambi

Indian Institute of Technology Bombay

2015-19 Mumbai

- B.Tech. in Electrical Engineering with a *Minor* in Computer Science, **GPA:** 9.07/10

PUBLICATIONS

- C. Talegaonkar, P. Khirwadkar, A. Rajwade, **Compressive Phase Retrieval under Poisson Noise**, *IEEE ICIP 2019* [Paper]
- C. Talegaonkar, A. Rajwade, **Performance Bounds For Tractable Poisson Denoisers With Principled Parameter Tuning**, *IEEE GlobalSIP 2018* [Paper]

TECHNICAL SKILLS

- C, C++, MATLAB, Python, Bash, VHDL
- PyTorch, CUDA, OpenCV, Numpy
- Git, HTML, SQL, Javascript

KEY COURSES

- **Computer Science:** Advanced Machine Learning, Advanced Image Processing, Medical Imaging, Reinforcement Learning
- **Electrical Engineering:** Computational Imaging*, Matrix Analysis*, Image Processing, Optimization, Estimation and Identification, Probability and Random Processes

* To be completed by Fall 2019

SCHOLASTIC AWARDS

- **Silver Medal** | 10^{th} International Junior Science Olympiad, 2013 | 250 participants from over 40 nations
- South East Asia Machine Learning summer school 2019 (SEAMLS) | Jakarta, Indonesia| **100/1100** applicants selected
- All India Rank **9** | KVPY 2014 | Over 50000 candidates | Research aptitude test

EXPERIENCE

ROTATION GRADUATE STUDENT

May 2019 – Present Visual Machines Group, UCLA

- Investigating **deep learning** methods to discover **physics phenomena** governing a data generation process
- Obtained accurate **semantic expressions** for a damped pendulum with time-series data by combining an **encoder-decoder** (*SciNet*) with **Genetic programming**
- Exploring **representation learning** approaches to generate representation spaces abiding data and structure of physics expressions

NVIDIA | AI/ML COMPUTE DEVTECH INTERN

May 2018 – July 2018 Bangalore, India

- Developed CUDA kernels for optimizing the routing layer back-propagation in **capsule networks**
- Achieved a cumulative speed-up of **2x** by adding support for **mixed-precision** training
- Parallelized end-to-end implementation of **DBscan** (clustering algorithm) for **NVIDIA Rapids** library

KEY PROJECTS

Fully Convolutional networks for Phtometric Stereo

- Implemented a deep learning based approach for **Photometric Stereo**. Evaluated its performance on the DiLiGenT dataset [GitHub]
- Introduced stochasticity to the cosine loss function and added **dilated convolutions** to the existing architecture
- Observed 8 % improvement in performance using dilated convolutions

Reinforcement Learning for Multi-Agent Game Play

- Investigated multi-agent game play using the **Pommerman** environment with 4 individually competing agents.
- Trained an agent using **Deep Q learning from demonstrations (DQfD)** that improves upon qualities learned by the other 3 rule based agents [Report] [Video]

Single Image Super Resolution for Medical Imaging

- Developed a **sparse** linear representation based approach for joint **denoising** and **super resolution**
- Obtained improvements over bi-cubic interpolation for noisy medical images as inputs [Report]

Gridless Estimation of Saturated Signals

- Compared the performance of atomic norm minimization and a **compressed sensing** formulation for recovering a signal composed of decaying sinusoidals from noiseless **clipped measurements** [Report]