CHINMAY TALEGAONKAR

Masters student, UCLA | Department of Electrical and Computer Engineering

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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, Tensorflow, CUDA, OpenCV
- HTML, SQL, Javascript, Slurm, Git

KEY COURSES

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

* To be completed by Fall 2019

MISCELLANEOUS

- South East Asia **Machine Learning Summer School** 2019 (SEAMLS) | Jakarta, Indonesia| **100/1100** applicants selected
- UG Teaching Assistant in 2016| Quantum Physics | Dept. of Physics, IIT Bombay
- Event Manager | Astrophysics Hackathon | Inter-IIT Tech Meet 2019 |
- Academic Committee Member | International Olympiad of Astronomy and Astrophysics 2016 | IoAA 2016

EXPERIENCE

GRADUATE STUDENT RESEARCHER

May 2019 – Present Visual Machines Group, UCLA

- Investigating **deep learning** methods to discover **physics expressions** from observed data
- Obtained expressions within 2% accuracy for damped pendulum oscillations by combining an **encoder-decoder** architecture (*SciNet*) with **Genetic programming**
- Exploring **representation learning** approaches to compute appropriate vector representations for symbolic 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

Feb 2019 - March 2019 Personal Project | IIT Bombay

- Implemented a deep learning based approach for **Photometric Stereo**. Evaluated its performance on the DiLiGenT dataset [GitHub]
- Observed **8 % improvement** in performance by adding **dilated convolutions** to the existing architecture

Reinforcement Learning for Multi-Agent Game Play

Sept 2018 - Dec 2018 CS 747 Project | IIT Bombay

- 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

Feb 2019 - April 2019 CS 736 Project | IIT Bombay

- 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]

Face Swap using Poisson Blending

Sept 2017 - Dec 2017 CS 663 Project | IIT Bombay

- Implemented the **mixed gradients** variant of the **Poisson solver** to seamlessly swap two face images [GitHub]