Samarth Mishra

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Education

- **Georgia Institute of Technology** — ***Atlanta, GA***
  Masters *in CS with specialisation in ML* (GPA : 4.0/4) Expected May 2019
  Advisor : Prof. James M. Rehg
- **Indian Institute of Technology, Bombay** — ***Mumbai, India***
  B. Tech *(Honors) in CS and Minor in EE* (GPA : 9.46/10) 2013-2017

Publications

S. Stojanov, *Samarth Mishra*, A. Thai, N. Dhanda, A. Humayun, C. Yu, L. B. Smith, J. M. Rehg:
Incremental Object Learning from Contiguous Views.
Oral, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019

K. Chatterjee, B. Kragl, *Samarth Mishra*, A. Pavlogiannis:
Faster Algorithms for Weighted Recursive State Machines.
26th European Symposium on Programming (ESOP), 2017

Experience

Graduate Student Researcher — ***Georgia Tech*** — Ongoing
Research on **Computer Vision** and **Deep Learning** with Prof. James M. Rehg:

- **Incremental Object Learning** (CVPR' 19): Introduced a new synthetic data generating environment and a 3D object dataset for incremental object learning. Established importance of repetition in incremental learning and introduced the paradigm of weak supervision along with a baseline solution.
- **Discriminative 3D Shape Representations** : Working on learning discriminative 3D shape representations from multiple object views without explicit class supervision. In preparation for ICCV'19

MTS - Intern (Machine Learning) — ***Nutanix Inc.*** — Summer 2018
Established a proof of concept for using **semantic parsing** and **machine learning** to handle **natural language queries** on a subset of Nutanix's multi-cluster management database.

Software Engineering Intern — ***Samsung*** — Summer 2016
Developed a **mobile application** on Tizen3.0 OS for **process monitoring** via **log parsing**, with a user friendly UI, notification alerts and active responses for misbehaving processes

Visiting Student Researcher — ***IST Austria*** — Summer 2015
Implemented a **fast reachability algorithm** on weighted recursive state machines(RSMs) with finite height semiring weights. Established significant speed improvement over jMoped on SLAM/SDV

Teaching

- ***Graduate Teaching Assistant*** for AI at Georgia Tech (Spring 2018 - Spring 2019)
- ***Teaching Assistant*** for 3 classes in CS and Math at IIT Bombay : (2015-17)
  Computer Networks, Intro to Computer Programming, Intro to Linear Algebra

Key Academic Projects

GPGPU solutions for Linear Least Squares Problem *Spring 2018*
Implemented the following general purpose GPU (GPGPU) solutions for the linear least squares problem and compared with the corresponding CPU implementations : **Householder** QR decomposition, **Cholesky** decomposition and **Givens** QR decomposition

Kernel Dictionary Learning *(Bachelor's Thesis)* 2016-17
Implemented **kernel dictionary learning** on a **spherical manifold**. Studied the effect of different **regularizers** and **kernels**, on robustness in **classification** performance of the algorithm, under different kinds and intensities of noise, on MNIST handwritten digits dataset

Medical Image Segmentation : DeepCut Spring 2017
Implemented **DeepCut** image segmentation algorithm and used it to segment out the heart from human chest MR images. Used a **conv net** for soft segmentation and a **dense CRF** for regularization.

Reinforcement Learning : Carrom playing bot Fall 2016
Implemented and evaluated three different strategies (**deep Q-learning**, **deep deterministic policy gradients**, and **hand coding heuristics**) for building a carrom playing bot

Skills

- **Languages :** C | C++ | Java | Python | MATLAB | Bash | HTML | Javascript | CSS | LaTeX 2_ε
- **Technologies :** PyTorch | Tensorflow | Theano | CUDA | Blender | Numpy | Hadoop | Pig | Spark

Achievements and Awards

- Awarded **Institute Academic Prize**, IIT Bombay 2014
- **All India Rank 30** in JEE-Main among 1.3 million candidates 2013
- Gold medal in **Indian National Physics Olympiad** for being among ***top 35*** in India 2013
- **PM's Trophy Scholarship**, awarded by Steel Authority of India Ltd. 2013-17
- Kishore Vaigyanik Protsahan Yojana (**KVPY**) scholar : **All India Rank 27** 2012-13
- National Talent Search Examination (**NTSE**) scholar 2009-12