Sanket Lokegaonkar

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EDUCATION

Virginia Tech *2016 - Present*
Masters in Computer Science
Relevant Courses: Advanced Machine Learning, Advanced Computer Vision, Parallel Computation, Multiprocessor Programming, Data Mining: Large Networks

University of Mumbai: Rajiv Gandhi Institute of Technology *2011 - 2015*
Bachelors in Computer Engineering
Relevant Courses: Analysis of Algorithms & Design, Artificial Intelligence, Computer Vision, Distributed Systems, Computer Organization & Architecture.

TECHNICAL SKILLS

Programming Languages: Java , Python, C/C++, Javascript, MATLAB , SQL, LaTeX
Libraries: Tensorflow, Pytorch, Scikit-learn, NLTK, Spring Framework, Android, AngularJS, JQuery, Spring MVC, Django

EXPERIENCE

Research Assistant Spring 2017-Present
Computer Vision & Machine Learning Lab, Virginia Tech
Guide: Prof. Jia-Bin Huang

- Currently working on reducing catastrophic forgetting effects observed in deep-learning networks to allow stable lifelong-learning.
- Developed loop-back module for ensuring forward-backward consistency in object tracking for videos with Deep Siamese Network.

Research Assistant Summer 2017
Discovery Analytics Center/VTTI, Virginia Tech
Guide: Prof. Naren Ramakrishnan

- The goal of the project is to understand the precursors of drowsy/distracted events in drivers and develop a robust algorithm that could reliably detect precursor signatures for real-time alert generation using sensor and video data from dashcam.
- Developed a baseline classifier utilizing sensor data with SVM.
- Developed 2 video classifcation/prediction modules viz C3D(3D Convolutions) and Two-Stream CNNs in Tensorflow and Pytorch.
- Factored important features for detecting and predicting the drowsiness task.

Research Intern Fall 2015 - Spring 2016
Indian Institute of Technology Bombay
Guide: Prof.Ganesh Ramakrishnan

- *Publication:* Developed framework in Python for building and evolving a domain-specific taxonomy, given an initial set of well-organized data points curated from expert user.
- *Web and Mobile Development:* Contributed significantly to the development of web application and android application with the goal of aggregating and disseminating informational multimedia content (farming practices/ folklore) to local communities in Rural India. Technologies used: Java Spring MVC , AngularJS , JQuery, Android
- *Open-source:* Contributed to the development of open-source library for handling cloud telephony workflows.

PUBLICATIONS

Building Complementary Domain Taxonomies using Query Enrichment IIT Bombay
Simoni S. Shah, Shraddha Bhattad, Sanket Lokegaonkar, Ganesh Ramakrishnan

- In IJCAI: Workshop on Cognitive Knowledge Acquisition and Applications

SELECTED PROJECTS

Unsupervised Pixel-level Domain Adaptation for Semantic Segmentation Spring 2017
ECE 6554: Advanced Computer Vision

- We proposed a novel approach of solving domain adaptation for semantic segmentation by using Conditional GANs to transfer styles across domains and reduce domain-distribution mismatch.
- We use the recent more stabler version of Conditional GANs namely Cyclic GANs. Code available in Pytorch.

QBOne: A Virtual Environment for Improving Quarterback Decisionmaking Spring 2017
CS 5754: Virtual Environments

- Designed and developed quarterback training environment in a motion-tracked Virtual Reality for American Football using Unity Game Engine.
- Conducted an user study to answer questions on how prior experience with football affects the movement and decision-making in VE.

Deep Reinforcement Learning in Multi-agent Soccer Fall 2017
CS 5824: Advanced Machine Learning

- We developed a simple approach of learning deep agents on half-field offense task in a multi-agent soccer environment.
- Agents were trained on two environments: 6x9 grid and Robocup 2d Soccer environment. The underlying model for the agents is Deep Q-Network with Opponent Modeling. Code available in Keras.

Structural optimization for in-memory key-value stores Fall 2016
CS 5204 Operating Systems

- Worked on 2 optimizations in Redis (popular key-value store), specifically Sorted Set and String key-value Hash-Map, replacing them with more compact and memory efficient Adaptive Radix Tree and Google's SparseHash.
- Performed evaluations on the modifications and validated the increased memory utilization seen due to the changes.

libConvex Fall 2016
CS 5485: Numerical Optimization

- Developed library for convex optimization methods in MATLAB.
- The library implements multiple algorithms on Line Search Methods, Trust-Region Methods, Conjugate Gradient, Quasi-Newton, Parameteric Least Squares, Sequential Quadratic Programming for equality constraints.

Speech Transcription and Presentation Development Aide Spring 2015

- Developed AngularJS web application aiding the development of video presentations and speech transcription for Spoken Tutorial team, IIT Bombay.

Semantic Search on Distributed Databases Spring 2015
Undergraduate Thesis: University of Mumbai

- Designed and developed a modular, fault-tolerant distributed search system supporting load distribution across nodes and dynamic management of nodes in Java.
- Works with multiple files like HTML, PDF, Word, Excel distributed over nodes.
- Supports "semantic" queries by combining Apache Lucene Indexing and state-of-the-art NLP parsers from Stanford NLP.

Nearest Neighbors Library Fall 2014

- Developed Optimized k-nearest neighbors classifier using Locality Sensitive Hash, KD-tree and did comparative analysis on 20 newsgroup dataset.

Additional Experience & Workshops

Worked as instructor and TA for CS:3714 Mobile Software Development
Attended Machine Learning Summer School 2015 focusing on Convex/Non-convex Optimization, IIT Bombay, India.
Contributed in CS teaching workshops for children in Rural India