BHAV ASHOK

anubhava@andrew.cmu.edu
bhav.co
(765) 586-6111

EDUCATION

Carnegie Mellon University, Pittsburgh, PA
Dec 2017

Masters in Computer Vision, Robotics institute **GPA: 4.17/4.00**

The University of Texas at Austin, Austin, TX
May 2016

Bachelor of Science in Computer Science
Bachelor of Science in Math

RESEARCH

Network to Network Compression via Policy Gradient Reinforcement Learning May 2017

- Introduced a novel model compression paradigm which operates on architectural space instead of weight space
- Achieved state-of-the-art model compression, enabling more efficient runtime and memory usage in real world systems
- Under review for ICLR 2018, Available on ArXiv, advised by Prof. Kris Kitani

Activity recognition using prediction Aug 2017

- Conducting research on creating a better feature space for the task of activity recognition by incorporating an auxiliary task of feature prediction
- Planning to submit to ECCV 2018, advised by Prof. Abhinav Gupta

EXPERIENCE

TexteDB, Text Analytics database Aug 2014 - Aug 2016

Founder/Developer

- Wrote a database that offers various text analytics APIs and efficient storage in C++
- Performed market research and business development alongside Mike Tulkoff

The University of Texas at Austin, Austin, TX Jan 2015 - Jun 2015

Student Researcher, Computer Vision Research Center

- Working on egocentric activity recognition under supervision of center director Dr. J.K. Aggarwal
- Worked on RGB-D Alignment, hand gesture recognition and performed data collection.

SUTD (MIT Collaboration), Singapore Dec 2014 - Jan 2015

Visiting Student Researcher, Computer Vision Department

- Researched state-of-the-art methods to improve homography estimation in Image Based Localization
- Improved performance by 30% by implementing Multiple Structures estimation and LoRansac
- Worked under supervision of Dr. Ngai Man Cheung

Apple Inc., Cupertino, CA May 2014 – Sept 2014

Software Engineering Intern, Wireless Technologies

- Designed algorithms and optimizations for Indoor Positioning team in C++
- Created multiple tools to visualize and quantify measured data
- Worked extensively with data measured from Gyroscope, Accelerometer and Magnetometer

CognitiveScale, Startup, Austin, TX Dec 2013 – May 2014 & Sept 2014 - Jan 2015

Software Engineering Intern, Platform Team

- Built a scalable real-time Geo Density indexer using Redis, capable of indexing 10 million points/sec
- Built a de-centralized repository to curate Computational Agents
- Implemented various scheduling algorithms in core platform

InfoTrie Financial Solutions, Singapore Jun 2013 – Aug 2013

Summer Startup Intern

- Designed and developed scalable modules to gather and analyze large unstructured data in R
- Utilized data processing and text mining techniques for sentiment analysis and standardization of large datasets
- Collaborated with a team to develop and execute stock backtesting algorithms to optimize profit

PROJECTS

Generative Adversarial Fooling of Neural Networks May 2017

- Created an end-to-end trainable Generative Adversarial Network to generate images that fool a target Convolutional Neural Network
- Won best project in 16-824

Rendering Synthetic Objects into Legacy Videos May 2017

- User provides a fixed camera video with a single annotated frame
- Allows the user to then augment video with synthetic objects
- Resulting in a realistic video that respects real world optics and kinetics
- Extends previous work done to videos instead of still images

Improving Video Segmentation Using Region Proposals and FCNs Nov 2016

- Created a superior video segmentation algorithm by combining DeepMask object segmentation and Clockwork-FCN semantic segmentation
- Built and trained networks in Caffe

Better stochastic gradient descent Nov 2016

- Created a novel variant of stochastic gradient descent that consistently outperformed all current gradient descent variants tested on the MNIST and CIFAR-10 datasets
- Improved rate of convergence and produced a better testing accuracy, with the tradeoff of slightly increased computation. However, still converges faster after normalizing for computation.

Project Atlas, Computer Vision class final project Aug 2014

- Led a team of 3 other students and myself in building a virtual reality project
- Immersive real time interaction with a virtual globe which zooms in to StreetView
- Used Unity3D, Kinect, Vuforia and the StreetView API

Freshman Research Initiative, The University of Texas at Austin Spring 2012 & Spring 2013

- Built a spaghetti sauce generator and database of over 1000 recipes in C++ and MySQL
- Made spaghetti for class using recipe produced by generator during final presentation

High Performance Computing Quest, A*Star Research Institutes Singapore June 2011

- Designed a scalable Drug Discovery algorithm in C++ and won Bronze award
- Optimized program using parallel programming techniques and OpenMP to produce best time in competition

LEADERSHIP

Computer Vision Club (www.cmuvision.com) Aug 2016

- Founder and President of CMU's first Computer Vision club
- Organized club-specific events from Facebook Oculus, Google, Apple, Magic Leap and Nvidia

TECHNICAL SKILLS

Programming Languages: Proficient in Python, C++, Java, Matlab, JavaScript, R

Development Tools: Proficient in Pytorch, Tensorflow, Torch, Caffe, OpenCV
Github: www.github.com/anubhavashok

COURSES

Computer Vision (16-720, taught by Prof. Srinivasa Narasimhan) A+
Machine Learning (10-601, taught by Prof. Nina Balcan) A+
Visual Learning and Recognition (16-824, taught by Prof. Abhinav Gupta) A+
Physics Based Methods in Vision (16-823, taught by Prof. Srinivasa Narasimhan) A
Math Fundamentals for Robotics (16-811, taught by Prof. Michael Erdmann) A