MEDHINI G. NARASIMHAN

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EDUCATION

Doctor of Philosophy, Computer Science — Aug 2019 - **(present)**
University of California at Berkeley — **GPA: -**
Research Area: Computer Vision — Advisors: Prof. T. Darrell & Prof. A. Efros

Master of Science, Computer Science — Aug 2017 - May 2019
University of Illinois at Urbana-Champaign — **GPA: 4.00/4.00**
Research Area: Computer Vision — Advisors: Prof. S. Lazebnik & Prof. A. Schwing

Bachelor of Technology, Information Technology — Jul 2013 - May 2017
National Institute of Technology, Karnataka, India — **GPA: 9.50/10.00** | Rank: 2/110
Thesis Title: Automatic Generation of Sentential Descriptions for Videos — Advisor: Prof. Ananthanarayana V. S.

PUBLICATIONS

- **M. Narasimhan**, S. Lazebnik, and A. Schwing, *"Out of the Box: Reasoning with Graph Convolution Nets for Factual Visual Question Answering"*, NeurIPS 2018.
- **M. Narasimhan**, and A. Schwing, *"Straight to the Facts: Learning Knowledge Base Retrieval for Factual Visual Question Answering"*, ECCV 2018.
- **M. Narasimhan**, B. Balasubramanian, S. Kumar, and N. Patil, *"EGA-FMC: Enhanced Genetic Algorithm based Fuzzy K-Modes Clustering for Categorical Data"*, International Journal of Bio-Inspired Computation 2018.
- **M. Narasimhan**, and S. Kamath, *"Dynamic video anomaly detection and localization using sparse denoising autoencoders"*, Multimedia Tools and Applications 2017.
- **M. Narasimhan**, G. Vietri, A. Mehta, F. Rajabli, V. Aguiar-Pulido, K. Mathee, and G. Narasimhan, *"Predicting Symptom Severity and Contagiousness of Respiratory Viral Infections"*, ISCB 2016.

INTERNSHIPS

Learning priors for Room Navigation — **May – August 2019**
Facebook AI Research, CA — Mentors: Prof. Dhruv Batra, Prof. Devi Parikh
- Created a dataset and set-up the task of Room Goal Navigation in Habitat.
- Developed an end-to-end sample efficient learning-based agent which models scene priors in homes and uses these priors for room navigation.

Learning Cinematographic Principles from Videos — **May – August 2018**
Zillow Group, WA — Mentor: Dr. Ivaylo Boyadzhiev
- Developed unsupervised deep learning models to extract features which capture camera motion and cinematographic principles in videos.
- Performed semantic shot segmentation and motion analysis on videos to help summarize them.

Predicting Symptom Severity of Respiratory Viral Infections — **May – Jul 2016**
BioRG, Florida International University, FL — Mentor: Prof. Giri Narasimhan
- Developed a model to predict symptom severity and contagiousness of respiratory viral infections from time series gene expression data of subjects.

- Performed supervised feature selection to filter genes which affected shedding and symptom scores.
- Prediction accuracies significantly improved over existing models and near perfect results were obtained at early time points. Several early, middle, and late biomarkers were identified.

3D Reconstruction and Classification of Neuron Images **May – Jul 2016**
SMILE, Florida International University, FL Mentor: Prof. Ruogu Fang
- Reconstructed 2D and 3D neuron images based on structural information about the neurons.
- Designed a 3D CNN to classify the 3D neuron images.

Visiting Research Scholar **Dec 2015 – Jan 2016**
Indian Institute of Technology, Madras, India Mentor: Prof. Balaraman Ravindran
- Developed a C++ library of popular clustering algorithms.
- Assessed the performance of new similarity and distance metrics for comparing probability vectors.

Software Engineering Intern **May – Jul 2015**
Morgan Stanley, Bangalore, India
- Developed a distributed caching system using Hazelcast to reduce the memory footprint of two database querying applications.
- Designed an inter-modular communication system to enhance the UI of an application.

PROGRAMMING SKILLS

Languages: Python, C, C++, MATLAB, R, Java, HTML, CSS, PHP, Javascript
Deep Learning Frameworks: PyTorch, Tensorflow

PROJECTS

- Implemented a self supervised model for Audio-Visual sound separation and source localization in videos.
- Video to text - Developed a deep learning framework to automatically generate descriptions from videos as a part of the Microsoft Video-to-Text challenge.
- Image Analogies - Implemented an autoregressive algorithm for finding image analogies.
- Developed a video prediction system using generative adversarial networks.
- Designed a programming language as a part of a community service initiative to introduce programming to under-privileged children.

AWARDS AND ACHIEVEMENTS

- Snap Research Scholar, 2019 - awarded anually to 8 students for outstanding research in Computer Vision/Graphics.
- Siebel Scholar, Class of 2019 - awarded annually for academic excellence and demonstrated leadership to over 90 top students from the worlds leading graduate schools.
- NIPS Conference Travel Award 2018.
- Grace Hopper UIUC Conference Travel Grant 2018.
- AMD Best Undergraduate Thesis Award 2017 for best thesis across multiple schools.
- Huawei Merit Scholarship 2017 for class position and academic merit in NITK (*top 2 in class*).
- Best Poster Award at the 23rd ISCB Conference, 2016, Orlando, USA.
- Ranked 94th at the ACM-ICPC Asia regionals, 2014 (*out of 1000+ teams*).
- Ranked 2nd in Morgan Stanley Codeathon, 2014 (*out of 1000+ candidates*).
- CBSE Merit Certificate for top 0.1% in Computer Science and Mathematics, National High School Board Examinations, 2013 (*out of more than a million candidates*).
- Won Gold and Silver medals in Computer Science and Mathematics Olympiads at the school level.