

# MEDHINI G. NARASIMHAN

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## EDUCATION

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- Doctor of Philosophy**, Computer Science Aug 2019 - May 2023 (**expected**)  
University of California at Berkeley **GPA: 4.00/4.00**  
*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**

## PUBLICATIONS

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- **M. Narasimhan**, A. Jabri, A. Owens, A. Efros, T. Darrell, “*Contrastive Video Textures*”, ICLR 2021. (*under review*)
- **M. Narasimhan**, E. Wijmans, X. Chen, T. Darrell, D. Batra, D. Parikh, A. Singh, “*Seeing the Un-Scene: Learning Amodal Semantic Belief Maps for Room Navigation*”, ECCV 2020.
- **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

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- Room Navigation using Learned Semantic Maps** May – August 2019  
Facebook AI Research, CA Mentors: Prof. Dhruv Batra, Prof. Devi Parikh
- Introduced an approach for Room Navigation which generates top down belief maps containing room semantics, predicts a point in the specified target room, and navigates to the point using a point navigation policy.
  - Added Room Navigation task and dataset to the Habitat platform.
- 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 from structural information of the neurons.
- Designed a 3D CNN to classify the 3D neuron images.

**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**

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**Languages:** Python, C, C++, MATLAB, R, Java, HTML, CSS, PHP, Javascript

**Deep Learning Frameworks:** PyTorch, Tensorflow

**PROJECTS**

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- Audio-Visual sound separation and source localization in videos using self supervision.
- 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**

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- Snap Research Scholar, 2019 - awarded annually 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.