Srinidhi Hegde

3 Taxila Apartments, IIT Delhi, Hauz Khas, New Delhi- 110016. India.

+91 9560118133 • shrinidhihegde@gmail.com
https://srihegde.github.io/ • https://github.com/srihegde

Education

- **Indraprastha Institute of Information Technology Delhi** — **2013 - 2017**
  B.Tech, Computer Science and Engineering — *Overall GPA: 8.63/10*
- **Suraj Bhan D.A.V Public School, New Delhi** — **2011 - 2013**
  All India Senior School Certificate Examination (AISSCE) by CBSE for XIIth grade — *Percentage: 94.2%*

Relevant Coursework

Machine Learning, Computer Vision, Convex Optimization, Probabilistic Graphical Models, GPU Computing, Computer Graphics, Artificial Intelligence, Big Data Analytics, Data Mining, Compilers, Mobile Computing, System and Network Administration, Modern Algorithm Design, Data Structures and Algorithms

Publications

- **S. Hegde**, J. Maurya, R. Hebbalaguppe. "SmartOverlays: A Visual Saliency Driven Label Placement for Intelligent Human-Computer Interfaces". (Accepted) IEEE Winter Conference on Applications of Computer Vision (WACV), 2020
- **S. Hegde**, R. Prasad, R. Hebbalaguppe. "Variational Student: Learning Compact and Sparser Networks in Knowledge Distillation Framework". IEEE 45th International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2020 (Under-review)
- N. Rakholia*, **S. Hegde***, R. Hebbalaguppe, "Where To Place: A Real-Time Visual Saliency Based Label Placement for Augmented Reality Applications". International Conference on Image Processing (ICIP), 2018
- G. Garg*,, **S. Hegde***, R. Perla, V. Jain, L. Vig, R. Hebbalaguppe. "DrawInAir: A Lightweight Gestural Interface Based on Figertip Regression". Observing and Understanding Hands in Action, European Conference on Computer Vision (ECCV), 2018
- **S. Hegde**, G. Garg, R. Perla, R. Hebbalaguppe. "A Fingertip Gestural User Interface Without Depth Data for Mixed Reality Applications". Demo Track, IEEE International Symposium on Mixed and Augmented Reality (ISMAR), 2018
- **S. Hegde**, R. Perla, R. Hebbalaguppe, E. Hassan. "GestAR: Real Time Gesture Interaction for AR with Egocentric View". IEEE International Symposium on Mixed and Augmented Reality (ISMAR), 2016

Technical Skills

- **Expertise Area:** *Computer Vision, Virtual and Augmented Reality, Machine Learning, Computer Graphics and Android Development*
- **Programming Languages:** *Python, C++, C, Java, MATLAB*

- **Deep Learning Libraries:** *PyTorch, Tensorflow, Caffe, Keras, Theano*
- **Libraries:** *OpenCV, PCL, Numpy, Scikit-learn, OpenGL, Qt*
- **Tools:** *Android Studio, CUDA, .NET, Visual Studio, CryEngine, Antlr, Ruby on Rails*

Patents

- Sparsity Constraints And Knowledge Distillation Based Learning Of Sparser And Compressed Neural Network
  Srinidhi Hegde, Ramya Hebbalaguppe, Ranjitha Prasad
- Multi-label Placement For Augmented And Virtual Reality And Video Annotations
  Ramya Hebbalaguppe, Srinidhi Hegde, Jitender Maurya
- Real Time Overlay Placement In Videos For Augmented Reality Applications
  Srinidhi Hegde, Ramya Hebbalaguppe

Work Experiences

- **Researcher, TCS Innovation Labs, Gurgaon** **Aug,2017 - Present**
  Advisors: Ms. Ramya Hebbalaguppe, Dr. Lovekesh Vig
  - **Deep Model Optimization** - Compressing the memory-intensive DNN models with a minimal compromise in model accuracy using variational methods and knowledge distillation
  - **Unsupervised Animation Transfer** - A geometry invariant method of animation transfer using motion cues from moving reference objects in RGB-D videos to animate target deformable meshes with similar topologies
  - **In-air Gestural Interface for AR** - Hand gesture classification through fingertip coordinate regression in a temporal model for touch-less interactions in AR
  - **Situated Visualisation in AR** - Visual saliency based non-intrusive and temporally coherent overlay placement solution in AR/video applications

- **Teaching Assistant, GPU Computing** **Jan,2017 - May, 2017**
  Advisor: Dr. Ojaswa Sharma
  - Designing course curriculum and CUDA assignments
  - Guiding students on course projects
  - The course of GPU Computing is taught at Graduate and Post Graduate levels at IIIT-Delhi

- **Research Intern, TCS Innovation Labs, Gurgaon** **May,2016 - Aug,2016**
  Advisors: Ms. Ramya Hebbalaguppe, Dr. Ehtesham Hasan
  - Designing frugal AR framework and implementing AR application with Google Cardboard for Android Platform
  - Development of hand gesture interaction techniques for Google Cardboard for AR using Gaussian Mixture Model based hand detection
  - Designing application UI for seamless text rendering in AR
  - Industrial inspection – details

Projects

- **Robust 3D Reconstruction of Indoor Scenes using Deep Learning** **Aug,2016 - May, 2017**
  Advisors: Dr. Saket Anand and Dr. Ojaswa Sharma

  Employing CNNs for an end-to-end reconstruction of the indoor scenes through camera relocalization, through PoseNet, and depth estimation, through multi-scale fully convolutional network, from a single RGB image during inference and registering the 3D reconstructed patches through iterative closest point algorithm.

- **American Sign Language Recognition Using Hierarchical Rank Pooling** **Sep,2016 - Nov,2016**
  Advisors: Dr. Saket Anand and Dr. Anubha Gupta

Recognizing sign language videos as glosses automatically using hierarchical rank pooling features, for generating video length invariant features, in a modified CaffeNet architecture.

- **Fault Tolerant Area Coverage in Multi-Agent Systems** **Jan,2016 - May,2016**
  Advisor: Dr. P.B Sujit

  Solving the patrolling problem of Multi-Agent Systems by developing a distributed fault tolerant area coverage algorithm, resulting in quick detection of the faulty agent under limited communication constraints and redistributing the area without conflicts. The approach is based on periodic communication between agents considering agent motion uncertainty and designing a conflict free scheduling.

- **Vision Based Outdoor Localization of IIIT-Delhi Campus** **Feb,2016 - Apr,2016**
  Advisor: Dr. Saket Anand

  Estimating GPS location of a single RGB image of outdoor environment by, firstly, *GPS coordinate retrieval from image classification* and secondly, fine tuning the location estimate using *structure from motion and and position triangulation*. This application was interfaced by an Android mobile application.

- **Modelling Vegetation with L-systems using an Image** **Aug,2015 - Dec,2015**
  Advisor: Dr. Ojaswa Sharma

  Generating 3D models of vegetation from RGB image using procedural skeletonization techniques based on L-Systems, a context-free grammar. Developing a user interface to convert a single captured image of tree to a 3D model using user-guided brush strokes.

- **Virtual Campus Project** **May,2015 - Aug,2015**
  Advisor: Dr. Ojaswa Sharma

  Modeling and immersive rendering of the virtual architectural model of the IIIT Delhi campus using 3DS Max and Cryengine3. This is an umbrella project housing various sub-projects. I worked on terrain generation using spot level elevation data.

Awards and Achievements

- Dean's Teaching Excellence Award 2017 for best teaching assistant for GPU Computing course offered at IIIT Delhi.
- Selected for Eastern European Machine Learing Summer School 2019, held at Politehnica University of Bucharest, Romania.
- Selected for Computer Vision and Machine Learning Summer School 2017, organised by Centre for Visual Information Technology, IIIT Hyderabad.
- Selected for fully-funded scholarship for attending CVS Vista Summer School 2017 conducted at York University, Canada.
- First Runner-up in semi-finals of Annual Science Quiz 2009, held at National Science Center, Delhi.
- Junior Science Talent Search Examination (JSTSE) 2009 by Directorate of Education, Delhi State Govt. Obtained 33rd rank (top 99.4th percentile) in Delhi State.

Positions of Responsibility

- Mentor for PanIIT Hackathon. Mentored the teams that finished at 3rd and 4th positions in the event. - TCS-PanIIT Conclave 2019 - Jan, 2019
- Publicity & Jury Team - Research Showcase'17, IIITD - Feb, 2017 - Apr, 2017
- Event Head - BrainFuzz, the algorithm design contest, at Esya'16, IIITD - May,2016 - Aug,2016
- Core Team, Virtual Campus Project at IIITD - Aug,2015 - Dec,2015
- Rendering Team, Virtual Campus Project at IIITD - May,2015 - Aug,2015
- Teaching Assistant at IIITD for Refresher Module of Data Structures and Algorithms for incoming M.Tech batch - Jun,2015 - Aug,2015
- Moderator for Rebuttal - Online Debate Event at Esya - IIITD's Tech Fest - Aug,2014