

Harsh Agarwal

[LinkedIn](#) | [Github Page](#) | [Quora](#)

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EDUCATION

- **Robotics Institute, Carnegie Mellon University (CMU)** Pittsburgh, PA
Master of Science in Robotics ; CGPA: 4.11/4.33 Aug. 2018 – Aug. 2020
- **Indian Institute of Technology - BHU** Varanasi, India
Bachelor of Technology in Electrical Engineering; CGPA: 9.32/10.0 July. 2014 – May. 2018

EXPERIENCE

- **Rephrase.ai** Bengaluru, India
Machine Learning Research May 2020 - Present
 - Text Based Synthetic Video Creation [\[rephrase.ai\]](#)
- **Cognitive Assistance Lab & KLab, CMU** Pittsburgh, PA
Research Assistant under [Prof. Kris M Kitani](#) July 2018 - Present
 - NavCog - Bluetooth Low Energy (BLE) Based Localization [\[Lab Project Page\]](#)
- **Australian Centre for Robotic Vision** Adelaide, Australia
Research Intern under [Prof. Ian Reid](#) May 2017 - July 2017
 - Unsupervised Learning of Monocular Depth Estimation and Visual Odometry with Deep Feature Reconstruction [\[Paper\]](#) [\[Project Page\]](#) [\[Code\]](#)
- **Video Analytics Lab, Indian Institute of Science** Bangalore, India
Research Intern under [Prof. R. Venkatesh Babu](#) May 2016 - July 2016
 - Sematic Sketch Segmentation and Annotation using CNN's [\[Project Page\]](#) [\[Code\]](#)

PUBLICATIONS

- **Unsupervised Learning of Monocular Depth Estimation and Visual Odometry with Deep Feature Reconstruction** by Huangying Zhan, Ravi Garg, Chamara Saroj Weerasekera, Kejie Li, **Harsh Agarwal**, Ian Reid, accepted at CVPR 2018 [\[Paper\]](#)
- **DeepBLE: Generalizing RSSI-based Localization Across Different Devices** by **Harsh Agarwal** under the supervision of Kris M Kitani, Michael Kaess and Navyata Sanghvi. [\[Thesis\]](#) [\[arXiv\]](#)

SIDE PROJECTS

- **Preserving content in voice conversion using Auto-encoders** stress testing and exploring [EAE's](#)
- **Understanding/Exploring fundamentals behind Neural Style Transfer**
- **Uncertainty aware ICP for Monocular Odometry and Dense Mapping (Course Project)** [\[Report\]](#) [\[PPT\]](#)
- **Towards a SemiSupervised CheXpert (Course Project)** [\[Report\]](#)
- **Learning to Manipulate Objects with Robotic Hands (Course Project)** [\[Report\]](#)
- **Virtually True (College Hackathon)** Developed a game using Kinect involving Gesture Recognition and AR. [\[Code\]](#)

PROGRAMMING SKILLS COURSEWORK

- **Languages:** Python, MATLAB, C++, C
- **Frameworks:** Proficient: PyTorch Prior Experience: Keras, Tensorflow, Caffe, CUDA, ROS
- **Graduate Courses:** Fundamentals of Robotic Maths, Computer Vision (CV), Geometry based Methods in CV, Robotic Manipulation, SLAM, Advanced ML & DL, Robotics Business

EXTRA-CURRICULAR ACTIVITIES AND ACHIEVEMENTS

- **Mentor and Guest speaker at Tvarit**, talked on fundamentals of Neural Style Transfer. ([Lecture Link](#))
- **SAI Alumni Talk:** Guest Lecture at my school, talking to them regarding Entrepreneurship, Robotics, AI and my life in and after school. ([Talk Link](#))
- **IIT BHU Know Your Department Alumni Talk:** Guest Lecture organized by Entrepreneurship Cell at IIT BHU, talking to them regarding Entrepreneurship, Robotics, AI, Masters prospects etc. [Talk Link](#)
- **Talk at IIT Madras on pursuing masters in Robotics:** Guest Speaker at IIT Madras Webinar hosted by [ForeignAdmits.com](#), talking to them regarding prospects around pursuing higher education, with focus on Robotics and Applied Machine Learning. [Webinar Link](#)
- **Talk at Intelligent Mobility Labs:** Discussing prospects of self Driving Cars and Automobile Automation in India.
- Member of *Advisory Board* of the **Atal Tinkering Labs** at SAI International School guiding students about the latest technology, and how can we create simplified abstractions of it to explain school kids.
- **Teaching Assistant for Computer Vision 16-720 A** Fall 2019 at Robotics Institute CMU.
- Member of Director Board for **Graduate Entrepreneurship Club** at Tepper School of Business, CMU.
- Mentor for **RISS** & part of Admissions Committee at CMU
- Created a Large Short Film [Stopping by Woods](#) as a part of the [Film and Media Council](#) at IIT BHU.
- Pioneered a club **DLisLife** to promulgate and work on recent advancements in Machine Learning.
- Qualified for the *pre-final* round of the prestigious **Rhodes Scholarship** for 2017 and 2019
- Co-partnered **Handy Presents** to develop a business strategy for it's expansion.
- **Imagine Cup 2016 Big Idea Pitch - DesignAR** acknowledged as top 10 ideas in the world.
- **KVPY Scholar 2014** and **INSPIRE, 2014** Awardee