# BHAVAN JASANI

bjasani@cs.cmu.edu | https://bhavanj.github.io/ | www.linkedin.com/in/bhavan-jasani | (412) 618 – 9200

## EDUCATION

**Carnegie Mellon University, School of Computer Science** Pittsburgh, PA
*M.S. in Robotics* (Research based) | *CGPA: 3.89/4.3* August 2017 – June 2019 (expected)

***Courses:*** Visual Learning & Recognition, Deep Reinforcement Learning & Control, Computer Vision, Machine Learning, Math Fundamentals for Robotics, Advanced Multimodal Machine Learning (audited), Robot Localization & Mapping (current)

**Birla Institute of Technology & Science (BITS), Pilani – K.K. Birla Goa Campus** Goa, India
*Dual degree: M.Sc. Physics + B.E. Electrical & Electronics Engineering* | CGPA: 9.32/10 August 2011 – August 2016

## TECHNICAL SKILLS

**PROFICIENT**: Python, PyTorch, TensorFlow, Scikit, OpenCV, C, MATLAB, AWS, LabVIEW, Verilog
**FAMILIAR**: ELAN, ROS, PCL, MeshLab

## PROJECTS

***Movie Question Answering*** *(independent study course under Prof. Deva Ramanan)* May – December 2018

- Discovered and quantified language biases in video based visual question answering datasets and how deep networks learn to cheat, proposed ways to mitigate these language biases to make videos useful
- Exploited these biases to develop a simple model which only looks at the question, and yet achieves state of the art accuracy on 4 out of 5 categories on leader board of MovieQA dataset [link to paper]

***Localization and Mapping*** *(course project* - Math Fundamentals for Robotics*)* November – December 2018

- Compared different visual SLAM algorithms and built small pipelines for stereo based visual odometry and mapping on KITTI dataset

***Zero-shot Learning for Action Recognition (****course project* - Visual Learning & Recognition***)*** April – June 2018

- Built a zero-shot body pose based action recognition system, which learns joint semantics between word embeddings of class labels and the video features extracted from a spatio-temporal graph convolutional network (STGCN)
- STGCN takes time series of body pose of the action performer as the input & learns pose representation [details]

***Domain Adaptation for Image Classification: (****course project* - Deep Reinforcement Learning) March – May 2018

- Taking the predictions of a source domain trained network on target domain data as noisy labels
- Implemented a RL agent which learns a policy to sample from this data for training a new classifier for target-dataset, to maximize the classification accuracy of a small annotated partition (that acts as reward) of the target-dataset [link to paper]

***Adversarial Image Generation using GAN's (****course project* – Computer Vision***)*** November 2017

- Implemented a generative adversarial network (GAN) in TensorFlow for generating adversarial images which can fool a neural network (black box attack) for CIFAR 10 dataset [details]

## EXPERIENCE

**Carnegie Mellon University, Robotics Institute, School of Computer Science** Pittsburgh, PA
Research Assistant (*under Prof. Jeffrey Cohn and Dr. Laszlo Jeni*) October 2017 – present

- Building multi-modal (video + audio) emotion recognition system on noisy real time annotated data which has variable temporal lag between the video segments and the corresponding annotated emotion labels
- Using classical models that take time series of features (head & body pose, facial landmarks, action units) and deep learning models based on RNN's and CNN's
- Finding and quantifying the influence of head movements, facial expressions (Facial Action Units) and body pose on behaviour of people in interpersonal conversations

**Nanyang Technological University, School of Computer Science & Engineering** Singapore
Research Staff (*under Prof. Lam Siew Kei)* **[Publications - paper 1, paper2, paper 3]** August 2016 – May 2017

- Implemented parallel and hardware efficient (requires 40% less hardware resources) approximate implementation of Deformable Parts Model algorithm for low power, real time pedestrian detection system on Altera FPGA and Terasic camera

Internship (*bachelor's thesis under Prof. Lam Siew Kei)* *January 2016 – July 2016*

- Developed a novel approach for hardware acceleration by finding optimal bit-width, results in 45% reduction of bit-width of Harris Corner Detector with just 0.57% decrease in accuracy, and runs at high fps (335) on HD videos in ASIC [thesis report]