Gaurav Parmar

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Education

Carnegie Mellon University **Anticipated** June 2022
Masters of Science in Robotics
University of California San Diego June 2020
Bachelor of Science in Computer Science **(honors thesis advised by Prof. Zhuowen Tu)** **GPA:** 3.76

Publications

- "*Guided Variational Autoencoder for Disentanglement Learning*". Zheng Ding*, Yifan Xu*, Weijian Xu, **Gaurav Parmar**, Yang Yang, Max Welling, Zhuowen Tu. ***CVPR, 2020***
- "*Geometry-Aware End-to-End Skeleton Detection*". Weijian Xu, **Gaurav Parmar**, Zhuowen Tu. ***BMVC, 2019***
- "*Autonomous Smart Wheelchair: A Social Solution for Individual Need*". Isabella Gomez, **Gaurav Parmar**, Samarth Aggarwal, Nathaniel Mansur, Alexander Guthrie. ***CHI 2019 EA***

Relevant Experience

Undergraduate Researcher Assistant, Prof. Zhuowen Tu - UCSD **(January '19 - August '20)**
- Formulated a new geometrically inspired loss function for the task of skeleton detection that achieved improvements over the previous state of the art methods. (*BMVC 2019*)
- Explored disentangled generation of images by through guidance in the latent space of VAE *(CVPR 2020)*

Research Intern, Qualcomm Research & Development **(Summer '19)**
- Implemented state of the art methods for quantizing mobilenet based models with minimal drop in accuracy
- Investigated the accuracy/runtime tradeoff for 8-bit quantized DeepLab v3+ model
- Created a pipeline for compressing a pre-trained DeepLab v3+ to run inference at 20 fps on a smartphone (in preparation for the Qualcomm demo booth at NeurIPS 2019)

Instructional Assistant, COGS 181: Advanced Machine Learning Concepts **(Spring '19)**
- Responsible for grading, holding office hours and teaching the discussion section**s**

Undergraduate Researcher, Smart Wheelchair Research Group, Prof. Jack Silberman UCSD
- Recipient of the Triton Research Scholarship **(March '18 - June '19)**
- Explored the use of stereo cameras as a cost-effective alternative for generating depth maps
- Published the system overview at CHI 2019 conference and won 3rd place at the Microsoft Student Research Competition

Software Engineering Intern, Qualcomm Incorporated **(Summer '18)**
- Developed a tool using C++ to verify the Carrier Aggregation capabilities of the devices

Miscellaneous Projects

Synesthetic Solutions - digital augmentation for the traditional blind stick
- An end-to-end system that uses stereo cameras to build a depth map and provide haptic feedback to users
- Best project award at the ENG 10 exposition and 3rd place at the 2018 Triton Entrepreneur Event
- Awarded $5000 of prototype development funding by the UCSD Basement

Autonomous Car (scale 1:10) *(demo on the website)*
- Utilizes a CNN based policy network to predict the steering angle and throttle outputs for the motors
- Developed a framework for collecting data and training the policy network with behavior cloning
- Implemented the Soft Actor Critic in PyTorch

Interpretable NLP (class project: CSE 156)
- Implemented a trigram based and a word2vec based sentiment analysis language model
- Built a web interface to interactively compare the subtle difference and the failure cases of the two models
- Awarded the best project award in a class of more than 150 students