

# Gaurav Parmar

Unit 113, 7525 Charmant Drive, La Jolla, California, 92122 | gauravtparmar@gmail.com | +1 8583229224

**GitHub:** <https://github.com/GaParmar> | **LinkedIn:** <https://www.linkedin.com/in/parmargaurav/> | **http://gauravparmar.com/**

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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**

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## Research Publications

- “Reconciling Generative Modelling with Representation Learning”. **Gaurav Parmar**, Zhuowen Tu. *(undergraduate thesis)*
  - “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*
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## Relevant Experience

**Undergraduate Research Assistant**, Prof. Zhuowen Tu - UCSD

**(January ‘19 - August ‘20)**

- Formulated a new geometrically inspired loss function for the task of skeleton detection
- Explored disentangled generation of images by through guidance in the latent space of VAE
- Studied the distinct properties of VAE and GAN leading to developing the DC-VAE framework that uses contrastive feature learning for training a generative model with improved representations

**Research Intern**, Qualcomm Research & Development

**(Summer ‘19)**

- Implemented methods for quantizing mobilenet based models with minimal drop in accuracy
- Investigated accuracy/runtime tradeoff for 8-bit quantization of different semantic segmentation models
- 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)

**Instruction Assistant**, COGS 181: Advanced Machine Learning Concepts

**(Spring ‘19)**

- Responsible for grading, holding office hours and teaching the discussion sections

**Undergraduate Research Assistant**, Prof. Jack Silberman - UCSD

**(March ‘18 - June ‘19)**

- Recipient of the Triton Research Scholarship
- Explored the use of stereo cameras as a cost-effective alternative for generating depth maps
- Developed a pipeline for building a map of the room using ORB-SLAM2

**Software Engineering Intern**, Qualcomm Incorporated

**(Summer ‘18)**

- Developed a tool using C++ to automate the verification of Carrier Aggregation ability of the devices
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## 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

**Autonomous Car** (scale 1:10) *(demo on the website)*

- Developed a framework for collecting data and training the policy network with behavior cloning
- Designed a CNN based policy network to predict the steering angle and throttle outputs for the motors
- Implemented the Soft Actor Critic in PyTorch for training the agent in a simulator

**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 differences and the failure cases of the two models