

Dhaivat Bhatt

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EDUCATION BACKGROUND

Mila - Quebec AI Institute, University of Montreal

Research masters - Machine learning, GPA 4.07/4.00

Related courses: Probabilistic graphical models, Representation learning, Autonomous vehicles, Continual learning

Montreal, Canada

Sept. 2019-Present

Robotics research center, IIIT Hyderabad

MS by research, CSE and Robotics, GPA 8.8/10

Related courses: Digital image processing, Mobile robotics, Computer vision, Statistical methods in AI

Hyderabad, India

Aug. 2016 - Nov. 2018

BITS Pilani Hyderabad campus

BE(Hons.), Electronics and Instrumentation, GPA 6.19 / 10.0

Hyderabad, India

Aug. 2012 - Jun. 2016

PROFESSIONAL EXPERIENCE

University of Montreal

Visiting researcher, MILA - Quebec AI institute

Montreal, Canada

November 2018 - July 2019

- Implemented and tested Deep active localization[[link](#)] on a real robot(turtlebot). Successfully ported model trained in simulation to real world setup
- Trained and tested Sparseconvnet models to perform road segmentation in a pointcloud data for Maplite[[link](#)]

IIIT Hyderabad

Research assistant, robotics research center

Hyderabad, India

January 2016 - July 2016

- Trained SegNet to perform road semantic segmentation, improved road-curb boundaries by fusing depth information with semantic cues[[link](#)]

RESEARCH

- *Reviewer:* RAL, ICRA, RO-MAN, CVPR
- *BatchCal: Variational calibration of aleatoric uncertainty in neural regression*(Under review at CVPR 2021)
- *Probabilistic object detection: Strengths, Weaknesses, and Opportunities* (ICML AIAD 2020 Workshop)[[link](#)] : **Dhaivat Bhatt***, Dishank Bansal*, Gunshi Gupta*, Hanju Lee, Krishna Murthy Jatavallabhula, Liam Paull
- *MapLite: Autonomous intersection navigation without detailed prior maps*(RAL + ICRA 2020)[[link](#)]: Teddy Ort, Krishna Murthy, Rohan Banerjee, Sai Krishna Gottipati, **Dhaivat Bhatt**, Igor Gilitschenski, Liam Paull, Daniela Rus
- *Deep Active Localization*(RAL 2019)[[link](#)]: Sai Krishna Gottipati, Keehong Seo, **Dhaivat Bhatt**, Vincent Mai, Krishna Murthy, Liam Paull
- *Probabilistic obstacle avoidance and object following: An overlap of Gaussians approach*(RO-MAN 2019)[[link](#)]: **Dhaivat Bhatt***, Akash Garg*, Bharath Gopalakrishnan, K. Madhava Krishna
- *Have I reached the intersection: A deep learning-based approach for intersection detection from monocular cameras*(IROS 2017)[[link](#)]: **Dhaivat Bhatt***, Danish Sodhi*, Arghya Pal, Vineeth Balasubramanian, Madhava Krishna
- *CRF based method for curb detection using semantic cues and stereo depth*(ICVGIP 2016(Oral))[[link](#)]: Danish Sodhi*, Sarthak Upadhyay*, **Dhaivat Bhatt**, K Madhava Krishna, Shanti Swarup

ACADEMIC PROJECTS

Incremental learning of object detector through knowledge distillation

Continual learning - Course project

Montreal, Quebec

Jan 2020 - April 2020

- Designed and implemented incremental learning pipeline for object detection in detectron2
- Identified a design flaw in existing state of the art object detectors that fuels catastrophic forgetting in Object detection
- Employed knowledge distillation to alleviate issue of catastrophic forgetting, compared it with rehearsal based method to establish efficacy of knowledge distillation

Evaluating Robustness of Generative Classifiers Against Adversarial Examples

Probabilistic graphical models - Course project

Montreal, Quebec

Sept 2019 - Dec 2020

- Studied and implemented Analysis by synthesis presented in "Towards the first adversarially robust neural network model on MNIST"
- Ascertained robustness of generative classifiers to adversarial perturbations

Lane following using pure pursuit and object detection

Autonomous vehicles - Course project

Montreal, Quebec

Sept 2019 - Dec 2020

- Annotated object detection dataset for Duckietown
- Implemented a pure-pursuit controller and integrated with Object detector for Lane following

Skills

- **Programming Languages:** C, C++, Python, Bash Scripting
- **Framework and Tools:** Git, OpenCV, Robot Operating System (ROS), Gazebo, PyTorch, TensorFlow