# Sheel Dey

sheelabhadra@gmail.com
sheelabhadra.github.io
linkedin.com/in/sheelabhadra
(979)739-0962
Bryan,TX

## Education

2019 – ···· **Ph.D.** in **Computer Science**
Texas A&M University, *College station, TX*
*Research Interests:* Reinforcement Learning, AI Safety, Robotics
*Advisor:* Dr. Guni Sharon

2016 – 2019 **M.S.** in **Computer Science**
Texas A&M University, *College Station, TX*
*Thesis:* Automatic Whole-Brain Mapper for Localization and Registration
*Advisor:* Dr. Atlas Wang

2011 – 2015 **B.Tech.** in **Electronics and Communication Engineering**
National Institute of Technology, *Trichy, India*

## Publications

### Conference Proceedings

1. **Dey**, **S.**, Pendurkar, S., Sharon, G., & Hanna, J. (2021). A joint imitation-reinforcement learning framework for reduced baseline regret, In *Under review at international conference on robotics and automation (icra)*.
2. Ravipati, D., Chour, K., Nayak, A., Marr, T., **Dey**, **S.**, Gautam, A., Rathinam, S., & Swaminathan, G. (2019). Vision based localization for infrastructure enabled autonomy, In *2019 ieee intelligent transportation systems conference (itsc)*.

### Book Chapters

1. Narendra, S., **Dey**, **S.**, Coad, J., Polsley, S., & Hammond, T. (2019). *Freestyle: A sketch-based wireframing tool* (T. Hammond, M. Prasad, & A. Stepanova, Eds.). Cham, Springer International Publishing. https://doi.org/10.1007/978-3-030-17398-2_7

## Experience

2020 – ···· **Graduate Teaching Assistant**
Dept. of CSE, Texas A&M University, *College Station, TX*
*Course:* CSCE 625 – Introduction to Artificial Intelligence (Fall-2020)
- Holding office hours and grading assignments.

2019 – 2020 **Graduate Research Assistant**
Pi Star Lab, Texas A&M University, *College Station, TX*
- Researching safe-reinforcement learning for autonomous agents in the real-world.
  http://github.com/pi-star-lab/JIRL

## Experience (continued)

**Research Assistant**
Texas A&M Health Science Center, *Bryan, TX*
- Developed an application for the Wang lab that optimized the manual process of counting neurons in rodent brain images.
- Implemented a GUI using MATLAB backend that automatically processed the images and counted the neurons for users, reducing the time taken from 2-3 hours to under 15 minutes.

http://github.com/sheelabhadra/Brain-Atlas-Project

2018 – 2019 **Machine Learning Engineer Intern**
BNSF Railway, *Fort Worth, TX*
- Developed time series and regression models to predict the time to failure of railway track geometry (e.g. track gauge) for 32,500 miles of railway track.
- Engineered features such as cumulative million gross tonnage and time since last repair to handle sparse and irregularly spaced data obtained over 10 years.
- Achieved a Mean Absolute Percentage Error of 17% on the monthly forecasts for track gauge values which led to a reduction in maintenance cost.

2017 – 2018 **Research Assistant**
Texas A&M Transportation Institute, *College Station, TX*
- Implemented machine learning algorithms for real-time detection of emergency vehicle sirens around a self-driving car within 200 feet.
- Extracted 34 time and frequency-domain features from short audio clips.
- Achieved an F1 score of 0.89 on cleaned Google's AudioSet dataset.

http://github.com/sheelabhadra/Emergency-Vehicle-Detection

## Selected Projects

2020 **Learning to Drive in CARLA**
- Implemented the paper - "Learning to Drive in a Day" on the CARLA simulator in which an autonomous car learns drive around a track using reinforcement learning.

http://github.com/sheelabhadra/Learning2Drive

**Is My Flight Delayed?**
Won 1st place, *2020 TAMIDS Data Science competition*
- Trained tree-based models on U.S. airline delay data using the route, carrier, day and time of departure, flight occupancy, and historical delays as features to predict delays.

http://github.com/sheelabhadra/Pi-star-Skyblazers-DSC-2020

2019 **Reviving the Metro Bike Share in Los Angeles**
Won 1st place, *2019 TAMIDS Data Science competition*
- Developed tree-based models with bike docking station density, population, income, and comments from people as features to suggest 15 locations for new bike docking stations in Los Angeles.

http://github.com/sheelabhadra/superficial-intelligence

2017 **FAKER: Amazon Online Fake Reviews Detection**
- Implemented a self-organizing map to identify fake reviewers among 5000 online reviewers grouped based on the content and frequency of their reviews.

http://github.com/sheelabhadra/Faker

## Skills

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|---|---|
| Programming | Python, C++, Java, MATLAB, SQL |
| Frameworks | TensorFlow, Pytorch, OpenCV |
| Tools | Git, Bash, Flask, Docker, LaTeX |

## Talks and Presentations

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| 2020 | **Workshop on Model Interpretability**, TAMU Datathon Summer Bootcamp |
| 2018 | **Poster Presentation**, 3rd Annual Texas A&M Transportation Technology Conference |
| 2017 | **Oral Presentation**, 11th Conference on Pen and Touch Technology in Education (CPTTE) |

## Awards and Achievements

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|---|---|
| 2020 | **Virtual Grace Hopper Celebration scholarship** recipient |
| | **1st place in Grad division**, 2020 TAMIDS Data Science Competition |
| 2019 | **1st place in Grad division**, 2019 TAMIDS Data Science Competition |
| 2017 | **Dept. of CSE Travel Grant**, 11th Conference on Pen and Touch Technology in Education (CPTTE), Chicago, IL |