

Saaket Agashe

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Education

University of California, Santa Cruz *September 2021-June 2023*

MS Computer Science and Engineering (*GPA: 3.95*)

Thesis: Localization using Spatial Descriptions (In Progress)

Advisor: Dr. Xin Eric Wang

Veermata Jijabai Technological Institute, Mumbai *August 2016-September 2020*

BTech Electronics Engineering (*GPA: 8.2*)

Thesis: Perception and Motion Planning System for Autonomous Mobile Manipulator

Advisor: Dr. Faruk Kazi

Research Experience

Zero Shot Region Annotation for Localization using Spatial Description

Advisor: Dr. Xin Eric Wang *May 22-December 22*

- **Problem Statement:** Visually grounding Spatial Descriptions to a single point in an image based on descriptions of objects in the neighborhood of the point. A variation on the conventional Referring Expression Comprehension Task.
- **Contribution:** Developed a method to annotate images with objects and regions detected by a pre-trained VL model using crossmodal prompt tuning.
- Improved performance on the "Localization using Embodied Dialog" dataset by 12% for Unseen Validation part and 6% for test part on the "within 5-meter" accuracy metric over the existing method. Currently working on generalizing the method to other datasets.

Studying Writer Interactions in presence of text completion systems

Advisor: Dr. Anirudha Joshi *August 2020-May 2021*

- **Problem Statement:** Studying how users respond to and utilize phrase predictions in predictive text systems and understanding how it influences their writing.
- **Contribution:** Developed a text editor interface with phrase prediction capabilities using GPT-2 for text generation.
- Implemented text generation using Beam Search and Nucleus Sampling strategies.
- Engineered the editor interface to respond within a 150ms latency.
- Developed data visualization tools for qualitatively coding and analyzing writer behaviors.

Perception and Motion Planning for Autonomous mobile manipulator

Advisor: Dr. Faruk Kazi *August 2019-February 2020*

- **Problem Statement:** Develop a functional autonomous mobile manipulator for testing algorithms developed in simulation in the real world.
- **Contribution:** Implemented object-detection and grasping algorithm for a 6-DOF manipulator interface with a feature to visualize real-world objects in simulation.
- Implemented a CNN-based method that outputs grasp poses using raw image data and tested it with the physical manipulator.

Teaching Experience

University of California, Santa Cruz

Teaching Assistant

- Computer Systems and Assembly Language (Fall 21, Winter 22, Spring 22, Fall 22)
- Developed grading scripts, instructed lab sections, and contributed to curriculum design and updates.

Work Experience

CygnusAI

Machine Learning Intern

September 2020-June 2021

Project: Automating medical record systems for medical practitioners

- Automated data annotation system by developing an LSTM model for medical term recognition. Created datasets for training the LSTM model with over 85% accuracy during validation.
- Created dataset of medical documents and trained a CNN model for medical document classification in Pytorch with over 90% accuracy during validation.
- Deployed both Deep Learning models as REST APIs with Flask on Docker Engine.

Skills

- Development: Python, C++, C, Javascript, ReactJS, Flask, FastAPI.
- Data Science: Pytorch, Scikit-learn, Spacy, D3.js, CVXPY, ImageJ.
- Research: Qualitative Analysis, Statistical Methods, LaTeX.

Awards

- **Winner:** Artificial Intelligence Hackathon, Tata Motors 2019. Speaker Diarization and Speech Emotion Recognition for Customer Interaction Data.
- **Semi-Finalist:** ABU National Robocon, 2018. Developing autonomous robotic system for object transfer and launch.

Publications

- Advait Bhat, **Saaket Agashe**, Niharika Mohile, Parth Oberoi, Ravi Jangir, Anirudha Joshi. 2022. Studying writer-suggestion interaction: A qualitative study to understand writer interaction with aligned/misaligned next-phrase suggestion? Preprint. arXiv:2208.00636 (Accepted for ACM-IUI 2023.)
- Advait Bhat, **Saaket Agashe**, and Anirudha Joshi. 2021. How do people interact with biased text prediction models while writing?. In Proceedings of the First Workshop on Bridging Human-Computer Interaction and Natural Language Processing, pages 116-121, Online. Association for Computational Linguistics.
- Patil, S., **Agashe, S.** (2021). Comparison of Neural Network Architectures for Speech Emotion Recognition. In: Biswas, A., Wennekes, E., Hong, TP., Wiczorkowska, A. (eds) Advances in Speech and Music Technology. Advances in Intelligent Systems and Computing, vol 1320. Springer, Singapore.