Saaket Agashe

Ph.D. Student, UC Santa Cruz (CSE)

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Education

PRESENT | **Ph.D. Computer Science and Engineering**
Jan '24 | UC Santa Cruz

Dec '23 | **M.S Computer Science and Engineering** **3.97/4**
Sept '21 | UC Santa Cruz

June '20 | **B.Tech Electronics Engineering** **8.2/10**
Aug '16 | VJTI, Mumbai

Experience

Sept 23 | **Simular** [🌐] **San Mateo, CA**
June 23 | *Research Intern | Supervisor: Ang Li*
Developed Agent S, an advanced OS-level GUI automation system that integrates experience-based learning, web retrieval, and hierarchical planning for efficient task execution, achieving state-of-the-art performance in the OSWorld benchmark.

Sept 23 | **UC Santa Cruz** [🌐] **Santa Cruz, CA**
June 23 | *Graduate Student Researcher | Advisor: Xin Eric Wang*
Developed and Analyzed Large Language Models for Multi-agent Coordination.

Sept 22 | **UC Santa Cruz | ERIC Lab** [🌐] **Santa Cruz, CA**
Jun 22 | *Research Intern | Advisor: Xin Eric Wang*
Developed an intuitive two-step method for localization from spatial descriptions by generating crossmodal prompts for mentioned spatial entities before end-to-end localization.

June 21 | **CygnusAI** [🌐] **Remote**
Sept 20 | *Machine Learning Intern | Supervisor: Atul Tatke*
Automated medical record annotation system by developing an LSTM-based open-domain medical term tagger. Created datasets for training the LSTM model.

Publications

P=Preprint, C=Conference, W=Workshop

[P.1] **Agent S: An Open Agentic Framework that Uses Computers Like a Human** [🔗]
Saaket Agashe, Jiuzhou Han, Shuyu Gan, Jiachen Yang, Ang Li, Xin Eric Wang
arXiv:2410.08164 **[Preprint]**

[P.2] **LLM-Coordination: Evaluating and Analyzing Multi-agent Coordination Abilities in Large Language Models** [🔗]
Saaket Agashe, Yue Fan, Anthony Reyna, Xin Eric Wang
arXiv:2310.03903 **[Preprint]**

[C.1] **Athena 3.0: Personalized multimodal chatbot with neuro-symbolic dialogue generators** [🔗]
University of California, Santa Cruz
[Alexa Prize SocialBot Grand Challenge 5 Proceedings]

[C.2] **Interacting with Next-Phrase Suggestions: How Suggestion Systems Aid and Influence the Cognitive Processes of Writing** [🔗]
Advait Bhat, Saaket Agashe, Niharika Mohile, Parth Oberoi, Ravi Jangir, Anirudha Joshi
Proceedings of the 28th International Conference on Intelligent User Interfaces **(Honorable Mention)** **[IUI '23]**

[W.1] **How do People Interact with Biased Text Prediction Models while Writing?** [🔗]
Advait Bhat, Saaket Agashe, Anirudha Joshi
First Workshop on Bridging Human–Computer Interaction and Natural Language Processing **[EACL '21]**

Select Research Projects

Evaluating Multi-Agent Coordination Abilities in Large Language Models May 23 - Oct 23

Advisor: Prof. Xin Eric Wang

- Introduced the LLM-Coordination Benchmark for the first comprehensive analysis of LLMs in Pure Coordination Games
- Developed the Agentic Framework Cognitive Architecture for Coordination for grounding LLMs to play pure coordination games like Hanabi and Overcooked
- Analyzed Large Language Models across the aspects of coordination - Theory of Mind Reasoning, Environment Comprehension and Joint Planning

Studying Writer Interaction with Langauge Model-powered Writing Assistants Aug 20 - May 21

Advisor: Prof. Anirudha Joshi

- Developed a custom GPT-2 powered writing interface fine-tuned on positive/negative movie reviews. Implemented Beam Search and Nucleus Sampling strategies for text generation.
- Developed a suite of tools for visualizing AI-assisted writing.
- Generated a theoretical cognitive process model of 'writer-AI interaction', describing AI's impact on the writing process.

Zero Shot Region Annotation for Localization using Spatial Description May 22 - Dec 22

Advisor: Prof. Xin Eric Wang

- Addressed the challenge of visually grounding Spatial Descriptions to points in images based on nearby object descriptions.
- Created a method for annotating images using crossmodal prompt tuning with a pre-trained VL model.
- Enhanced performance on the "Localization using Embodied Dialog" dataset, increasing accuracy significantly for both validation and test parts.

Awards and Achievements

Best Paper Honorable mention award at IUI'23 Received an honorable mention best paper recognition for 'Interacting with Next-Phrase Suggestions: How Suggestion Systems Aid and Influence the Cognitive Processes of Writing'

Runner-Up: Alexa Prize SocialBot Grand Challenge 2023 Achieved runner-up position in the Scientific Innovation Category.

Winner: Artificial Intelligence Hackathon, Tata Motors 2019 Awarded for developing a Speaker Diarization and Speech Emotion Recognition system for Customer Interaction Data.

Semi-Finalist: ABU National Robocon 2018 Recognized for developing an autonomous robotic system for Robocon '18.

Academic Service

Reviewer ICLR '23, EMNLP '23

Teaching and Leadership Roles

Computer Systems and Assembly Language *Teaching Assistant* Fall'21 - Fall'23

- Taught and conducted lab sections related to circuit design and assembly language at UCSC. Developed Grading Scripts and contributed to the development of course content over the course of 6 quarters.