Winson Chen

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Education

University of California, Santa Cruz — Santa Cruz, CA
Scientific Computing and Applied Mathematics, Master of Science — *June 2023*

University of California, Santa Cruz — Santa Cruz, CA
Computer Science, Bachelor of Science, Cum laude — *June 2022*

Irvine Valley College — Irvine, CA
Computer Science, Associate in Science, Cum laude — *Aug. 2020*

Publications

InfantAgent-Next: A Multimodal Generalist Agent for Automated Computer Interaction
NeurIPS'25
Bin Lei, Weitai Kang, Zijian Zhang, **Winson Chen**, Xi Xie, Shan Zuo, Mimi Xie, Ali Payani, Mingyi Hong, Yan Yan, Caiwen Ding

Active Listening: Personalized Question Generation in Open-Domain Social Conversation with User Model Based Prompting
EMNLP'24
Kevin Bowden, Fan Yue, **Winson Chen**, Wen Cui, Davan Harrison, Eric Xin Wang, Marilyn Walker

Early Experience with Transformer-Based Similarity Analysis for DataRaceBench
Correctness Workshop @ SC'22
Winson Chen, Tristan Vanderbruggen, Pei-Hung Lin, Chunhua Liao, Murali Emani

Aerial Vision-and-Dialog Navigation
ACL'23
Yue Fan, **Winson Chen**, Tongzhou Jiang, Chun Zhou, Yi Zhang, Eric Xin Wang

Athena 3.0: Personalized multimodal chatbot with neuro-symbolic dialogue generators
Alexa Prize SocialBot Grand Challenge 5 Proceedings
Yue Fan, Kevin K Bowden, Wen Cui, **Winson Chen**, Vrindavan Harrison, Angela Ramirez, Saaket Agashe, Xinyue Gabby Liu, Neha Pullabhotla, NQJ Bheemanpally, S Gard, M Walker, XE Wang

Experience

Business Analyst / Full-Stack Engineer — Mar. 2024 – Present
InfoIMAGE, Inc — *Brisbane, CA*

- Led a team of four in the design and development of an internal website, coordinating tasks, managing timelines, and ensuring successful project completion.
- Developed a new internal Core platform using Next.js and Flask, resulting in a 80% increase in data sample lookup
- Designed Core ORM by using SQLAlchemy, to increase development time by 20% and improve security
- Utilized RESTful API to facilitate front-end to back-end communication, improving data consistency by 50%
- Integrated AG-Grid to optimize the user experience resulting 15% increase in filtering and searching process

Machine Learning Engineer — Aug. 2022 – Sept. 2023
University of California, Santa Cruz / Amazon Alexa Prize — *Santa Cruz, CA*

- Reduced training time by 23% using LoRA and lightning package to fine-tune RedPajama 3B
- Enhanced system speed by 34% via AWS EC2 auto-scaling deployment of RESTful server with Red Pajamas 3B
- Increased 30% user ratings by fine-tuning RedPajamas 3B with dialog history for personalized questions
- Over three months, we achieved a 10% increase in user evaluations by implementing an APL (Alexa Presentation Language) detail template with text that auto-scrolls in sync with the voice-over
- Through the design and A/B testing of multiple variations of dialog managers and APL templates, we successfully attained a 13.5% improvement in satisfactory evaluations, striving to unveil the ultimate user experience

Data Scientist Intern Jun. 2022 – Sept. 2022
Lawrence Livermore National Laboratory *Remote*

- Designed web scraping pipeline using Scrapy's parallel process, improved 25% data collection
- Fine-tuned CodeBERT with DataRaceBench to adapt to parallel syntax in C/C++
- Optimized training speed by freezing hidden layers, reducing CodeBERT training time by 10%
- Set up a data pipeline to visualize SARS-CoV-2 Inhibitor for training a CNN in classification

ERIC Lab Assistant Aug. 2021 – Sept. 2023
University of California, Santa Cruz *Santa Cruz, CA*

- Received Amazon Alexa Prize Award to work on Alexa Prize SocialBot, TaskBot Challenge
- Collecting data with by simulating drone controller to create visual language navigation dataset
- Developed toolbox to help users to find published papers from Association for Computational Linguistics

Research Assistant Aug. 2021 - Dec. 2021
University of California, Santa Cruz *Santa Cruz, CA*

- Utilizing PySINDY package to fit the spatial-temporal data of drosophila genes using machine learning
- Experimenting various models to find the behavior of drosophila gap genes

Talks

Early Experience with Transformer-Based Similarity Analysis for DataRaceBench
Dallas, Texas 11/18/2022
In-person talk at Correctness workshop at SC22

Teaching

Graduate Teaching Assistant Sept. 2022 - June 2023
University of California, Santa Cruz *Santa Cruz, CA*

- MATH 19A (Calculus for Science, Engineering, and Mathematics)
- AM 10 (Mathematical Methods for Engineers I)
- AM 20 (Mathematical Methods for Engineers II)
- AM 214 (Applied Dynamical System)
- AM 250 (Intro to High-Performance Computing)

Honors and Awards

- Dean's Honor: Fall 2020, Spring 2021, Fall 2021, Winter 2022, Spring 2022
- Next Gen. SAM Scholar (Funded by National Science Foundation)

Technical Skills

Languages: Python, C, C++, CUDA/HIP(C++), SQL, JavaScript, HTML, CSS, Java
Frameworks: Flask, Django, PostgreSQL, React Native, jQuery, Bootstrap, Next.js
Developer Tools: Docker, Postman, Git, Jira
Libraries: PyTorch, TensorFlow, Pandas, NumPy, Matplotlib, Seaborn, Lightning, Gradio, Keras, BeautifulSoup, Scrapy, Selenium, OpenMP, MPI, OpenCV, Langchain, Streamlit, ChromaDB
Services : RESTful API, SLURM, AWS: SageMaker, S3, EC2