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Top Skills

Exploratory Data Analysis

Data Cleaning

Data Wrangling

Publications

Interactive neurorobotics: Behavioral and neural dynamics of agent interactions

Explore-Exploit Behaviors During Rat-Robot Interactions Optimize Social and Spatial Security

Raunit Kohli

ML Software Engineer III | Staff ML Researcher @ UC San Diego
San Diego, California, United States

Summary

Machine Learning Software Engineer at Rocket Software with professional research experience in Cognitive Science at UC San Diego. Dedicated team member with strong interpersonal skills and Agile experience passionate about Reinforcement Learning, Motion Profiling, Generative AI, and predictive data analytics. Published problem-solver seeking opportunities to advance the field of Deep RL.

Experience

Rocket Software

Machine Learning Software Engineer III

September 2024 - Present (1 year 8 months)

Waltham, MA

Currently building GenAI enabled tooling for enterprise optimizations.

Leading AI enablement training at Rocket to upskill our general engineering community with AI capabilities.

UCSD Cognitive Science Department

3 years 9 months

Staff Machine Learning Researcher

January 2024 - September 2024 (9 months)

San Diego, California, United States

- Works as Researcher on Rat-Robot Interaction Projects regarding Machine Learning algorithms focused on Robotic Motion Profiling & Tracking and Neural Signaling Analysis.

- Spearheads implementation of multiple Reinforcement Learning algorithms in Python for robotic PiRat utilizing extensive neural and positional data from 2500+ rat experiments to mimic and predict multi-agent interactions.

- Leads technical design and development for fully synchronized multi-modal Embedded-System including multiple machine-vision cameras, audio-capturers, depth-sensors, & physiological sensors aimed to host AI-powered classroom.

- Analyzes and adapts Computer Vision based Node Tracking Software in C++ to validate statistically significant accuracy of Tracker and apply environment parameters for PiRat robot experiments.
- Instructs and debugs training process of neural network using DeepLabCut on UCSD Supercomputer to effectively track rat positions on 500+ behavior-coded rat videos for robotic motion planning.
- Translates numerical qualifications to interpretable results for publications by utilizing Python libraries to apply statistical techniques for analyzing variable datasets of biological findings.
- Scores rat behaviors in recorded videos of rats interacting in multiple environments for behavioral statistics using SLEAP.
- Communicates with project team to develop new experiments that test statistical hypotheses and contributes to writing and editing future journal publications on new and existing projects.

Machine Learning Research Associate

January 2021 - January 2024 (3 years 1 month)

San Diego, California, United States

Data Science Teaching Assistant

September 2022 - December 2023 (1 year 4 months)

San Diego, California, United States

- Assisted Professor and Teaching staff of Upper-Division Cognitive Science course with over 750 enrolled students at UC San Diego.
- Planned and delivered weekly discussion sections podcasted to entire University population covering lecture content, course logistics, and in-depth interactive data science scripting and debugging tutorials.
- Assisted in delivering course content during discussions, answered questions via multiple LMS, managed and graded exams and assignments, wrote scripts to automate project grading process, and oversaw grading deadlines and syllabus changes.
- Course content includes introduction to Python data science libraries such as Pandas, Matplotlib, Numpy; introduction to statistical models for large datasets; development of multimodal data visualization techniques; ethical and effective exploratory data analysis; and conclusive techniques for breaking into the data science industry.

Hands-On Computing Instructional Apprentice

January 2022 - March 2022 (3 months)

San Diego, California, United States

- Assisted Professor of lower-division Cognitive Science course at UC San Diego in teaching instructional material to students.
- Course content includes introductory programming concepts and computational and cognitive models focused on dynamic systems.

Phi Sigma Pi National Honor Fraternity

2 years 4 months

Zeta Alpha Chapter Recruitment Advisor

September 2021 - December 2023 (2 years 4 months)

San Diego, California, United States

- Effectively fostered two new full-year generations of Honors members in UC San Diego Chapter, increasing membership by 250% and reinvigorating Chapter identity.
- Planned and executed recruitment process for UC San Diego Chapter (Zeta Alpha) of National Honors Fraternity to share organization with university students and invite eligible potential new members to apply.
- Delegated tasks to effectively flyer, table, and chalk organization information around campus to advertise recruitment events.
- Motivated active brothers to take on roles for running specific recruitment events focused on scholarship, leadership, and fellowship to showcase organization pillars to interested initiates.
- Taught pledges of Fraternity the history of the organization and skills for planning team events, writing resumes, mastering interviews, networking, earning leadership positions, and working in the industry.
- Facilitated pledge group project designing and planning for tripod events based on relevant initiate skills.

Zeta Alpha Chapter President

March 2022 - June 2023 (1 year 4 months)

San Diego, California, United States

- President of 30+ member UC San Diego Chapter (Zeta Alpha) of National Honor Fraternity dedicated to Scholarship, Leadership, & Fellowship.
- Implements legislative-approved plan for quarterly events focused on scholarship, fellowship, service, and fundraising by chairing committees and delegating tasks to Executive Board.
- Facilitates organization in small and large group academic activities and community service events, enhancing mentorship, communication, and collaboration skills.

- Coordinates with Fraternal National Office, University AS, University Registrar Office, and chapter advisors to advertise, promote, expand, and improve fraternity.

IBM

Automation and Testing Development Intern

June 2023 - September 2023 (4 months)

San Jose, California, United States

- Scripted in Ruby to automate API endpoint testing for entire IBM Aspera on Cloud Workflows App designed to automate workflows of global content transfer and exchange across on-premises and multi-cloud environments.
- Developed fully comprehensive automated regression framework with 780+ API tests covering all endpoints.
- Identified 15+ critical issues/bugs on live production server, communicated with developers to determine ideal expected behavior, and raised issues in project management tools to expertly report relevant failure details.
- Executed complete development cycle to outline and implement API Unit Test Controller for QA/Dev repository.
- Participated in global company-wide hackathon focused on emerging enterprise-ready watsonx AI platform.

Rocket Software

Software Engineering Intern

June 2022 - September 2022 (4 months)

Boston, Massachusetts, United States

- Launched project to build a foundational framework for Unit Tests integrating external Object-Oriented Programming libraries for Mocking and Line Coverage analysis.
- Achieved over 30% Line Coverage in live code case, surpassing initial annual Objective and Key Result goal of 10% and identifying multiple redundant external dependencies.
- Developed operational example model and corresponding research plan to implement Reinforcement Learning into MultiValue Database Performance tracking tool.
- Piloted BASIC and Rocket Tools training series for 2022 MultiValue intern team by creating and delivering lesson plans to highlight introductory coding techniques
- Collaborated with Software Development team utilizing Agile tools like Jira and Confluence to identify and solve bugs in products.

Yonder Dynamics

Software Team Programmer

September 2020 - January 2021 (5 months)

San Diego, California, United States

- Contributed with Yonder's Software team to program model mars rover for 2021 National University Model Rover Challenge.
- Researched & Implemented robot path following algorithm for Autonomous Robot Exploration utilizing Hermite Splines, Pure Pursuit, and Trajectory Motion Profiling.
- Coordinated with other software team members to effectively merge and debug implementation of new code on existing software.

Education

UC San Diego

Cognitive Science w/ Specialization in Machine Learning and Neural Computation, Computer Science · (September 2020 - December 2023)

Grafton High School

· (September 2016 - June 2020)