

RONGRONG(LORI) LIU

📍 LoriRongrong ♦ **in** Rongrong Liu ♦ 📞 (+1) 619 980 1544 ♦ ✉️ rol044@ucsd.edu

EDUCATION

University of California, San Diego

Expected March 2021

BS in Cognitive Science | Probability and Statistics, Minor in **Computer Science**

Overall GPA: 3.90/4.00 | Honor: Phi Beta Kappa

RESEARCH EXPERIENCE

Blue Marble Space Institute of Science

June 2020 - Sept 2020

Research Associate

Virtual

- Explored on evolutionary game theory principles on agent-based models simulated in NetLogo.
- Wrote a book chapter named “Universal Constraints of Life Derived from Artificial Agents and Games”.

System Energy Efficiency Lab - Rosing Lab

September 2018 - Present

Undergraduate Researcher

La Jolla, CA

- Led a team of 2 students, collecting ambient light data from a self-assembled portable light sensor for participants and an indoor stationary sensor for artificial lighting.
- Constructed a pipeline that includes data cleaning and hierarchical model inference, using Multi-Layer Perceptron and Support Vector Machine from Tensorflow package.

Summer Research Program at EPFL - Ramdya Lab

July 2019 - August 2019

Undergraduate Researcher

Lausanne, Switzerland

- Built angle oscillations of robotics leg joints in forward-walking *Drosophila melanogaster* biomechanical model.
- Programmed robotics oscillation center with coupled nonlinear oscillators to represent joints in Python.
- Tuned 37 parameters for oscillation center using Particle Swarm Optimization.

The Scripps Research Institute - Stowers Lab

December 2018 - March 2019

Undergraduate Researcher Assistant

La Jolla, CA

- Mapped different USVs (ultrasonic vocalizations) of mice with activities of neurons in MatLab to understand the potential neural mechanism of mice social vocalization.
- Analyzed the USVs in order to identify spatial and spectral features of mice vocalization under different social conditions.

POSTERS & PUBLICATIONS

Berea, A., **Liu, R.**, & Santiago, F. Universal constraints to life derived from artificial agents and games in New Frontiers in Astrobiology (2021), Elsevier, USA (forthcoming).

Liu, R., Lobato, V. R., & Ramdya, P. (2019, August). Coupled Oscillators for Legs of *Drosophila melanogaster* Biomechanical Model. Poster presented at the Summer Research Program Poster Symposium at Ecole polytechnique fdrade de Lausanne, Lausanne (EPFL), Switzerland.

Liu, R., Vu, C., Vanzant, B., Chitrarasu, J., Ostertag, M., & Rosing, T. (2019, June). Machine Learning to Approximate Ambient Light Exposure. Poster presented at the University of California, San Diego 2019 Early Research Scholar Program Symposium, San Diego, CA.

EXPERIENCES

Undergraduate Tutor

March 2020 - Present

Computer Science Department

La Jolla, CA

- Assist more than 100 students in understanding Java basics and data structures during lab hours, help in creating programming assignments.
- Using Python and JUnit to auto-grade programming assignments.

Workshop Facilitator

July 2020

Women in Machine Learning Un-Workshop

Virtual

- Encouraged engagement through asking questions and explain guest ideas.
- Took note to be shared with more 20 than participants after the session.

Extended Board Member

November 2018 - June 2020

Cognitive Science Student Association, Professional and Academic Development Dept.

La Jolla, CA

- Coordinated and assisted in National Cognitive Science Conference and Cognitive Science Talk Series for more than 1000 students with department fellows.

Undergraduate Instructional Assistant

Jan 2019 - June 2019

Cognitive Science Department

La Jolla, CA

- Promoted active learning by leading weekly lecture-style reviews for a section of 60 students, facilitating in-class discussions and activities, designing review and test questions, and attending weekly meeting with fellow instructional assistants and class instructors.

Student Worker

July 2018 - March 2019

Office of Vice Chancellor - Student Affairs

La Jolla, CA

- Engaged in office daily running by planning daily office routine, organizing and tracking over 20 annual Units Assessment Reports from different departments including Student Retention Success and Enrollment Management, and assisting in interdepartmental events.

PROJECTS

Event Planning

Aug 2020 - Sept 2020

- Built a web application "Voting System" with MongoDB, Node.js, and React.js.
- Read and write data with a MongoDB database and make the application data-driven.
- Featured with isomorphic rendering on the server and front-end routing and back-end routing.

Redesign Features on Google Calendar for Information Offload

Sept 2020 - Dec 2020

- Recruited and screened participants to conduct user research. Conducted user testing of design concepts and prototypes.
- Created low and high fidelity prototypes based on user research feedback.

Transfer Learning on Music Genre and Emotion Classification

May 2020 - June 2020

- Implement custom CNN model and compare with ResNet and VGG-16 both training from scratch and transfer learning on GTZAN, FMA, PMC, and RAVDESS datasets for emotion/ genre classification.
- Fine-tune hyper-parameters for custom model to reach 72.5% average testing accuracy across datasets for more than 10-class classification.

SKILLS

Programming Languages

Python, Java, JavaScript, MatLab, SQL, C, C++, R

Software & Tools

Unix, LaTeX, Git, Microsoft Office, Docker, Figma

Frameworks & Library

React.js, Node.js, Express, Pytorch

Database

MongoDB, MySQL, PostgreSQL