Seema Rida

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Highly motivated Cognitive Science student at UC San Diego specializing in Machine Learning & Neural Computation, with a minor in Computer Science. I'm passionate about brain-computer interfaces (BCIs), neurotechnology, and the science of learning and attention. I enjoy taking projects from start to finish–from designing data collection tools to analyzing multimodal signals. I'm especially interested in how the brain supports learning, focus, and speech.

EDUCATION

UNIVERSITY OF CALIFORNIA SAN DIEGO Expected Grad: June 2026
B.S. Cognitive Science, Specialization in Machine Learning & Neural Computation
Minor: Computer Science

- Clubs: Triton Prosthetics Society (Principal Member), Cognitive Science Student Association (Mentor)
- Relevant courses: Neural Signal Processing, Brain-Computer Interfaces, Advanced ML, Supervised ML, Neuroanatomy & Physiology, Systems Neuroscience, Data Structures, Research Methods

EXPERIENCE

UCSD Chiba Lab, La Jolla, CA October 2024-Present
Research Assistant (Full-Time)

- Conducting research under Dr. Andrea Chiba exploring behavior and well-being in real-world classroom environments
- Developing a time-synchronized embedded system for multimodal data capture (biometric, video, audio)
- Writing Python scripts to parse and archive EmotiBit sensor data; managing large-scale data workflows
- Troubleshooting network infrastructure for synchronized device communication using PTP and Dante

ABWAAB, Amman, Jordan August 2024-December 2024
Data Science and Learning Intern (Part-Time)

- Collaborated with the Learning and Data Science teams to explore predictive modeling of student performance on Abwaab's educational platform
- Contributed to early-stage feature engineering using course engagement and assessment data
- Helped identify key learning features and metrics based on platform usage, course interactions, and quiz performance
- Participated in team discussions around feature selection, algorithm choice, and project scope

THINKNEURO, Remote June 2024-August 2024
Co-Associate / Project Lead

- Co-led a team of 8 students in a literature-based research project on BCI therapies for stroke rehabilitation
- Conducted a bibliometric analysis using RStudio and Biblioshiny; co-authored a scientific poster presented at an undergraduate e-symposium
- Managed project tasks and schedules, ensuring team members met deadlines and coordinated effectively.

INTERNATIONAL ROBOTICS ACADEMY, Amman, Jordan June 2021-August 2023
Technical Instructor

- Taught hands-on robotics and programming classes for students aged 5–16 using LEGO EV3, WeDo 2.0 kits, and Scratch
- Mentored a student team preparing for the FIRST LEGO League (FLL) competition, drawing on personal experience as a 3-year FLL participant.
- Introduced students to interactive electronics and basic circuitry using beginner-friendly tools
- Assisted with administrative tasks such as managing payments, communicating with parents, and organizing schedules.

ABWAAB, Amman, Jordan July 2021-August 2021
UX Intern

- Designed a user-friendly profile page for the company website and production-live application using Figma.
- Collaborating with the software lead to design and implement an action plan for restructuring various website features, employing Figma mockups to refine design concepts for optimal user experience.

PROJECTS

Larval Zebrafish Neural Activity Analysis (*Python: pandas, scikit-learn, matplotlib, numpy)*

- Analyzed large-scale neural activity data from larval zebrafish to investigate brain region-specific processing patterns
- Performed PCA and k-means clustering to identify spatial structure and classify neural activity profiles
- Built custom plots and visualizations to support exploratory analysis and interpretation of neural signals

Zebrafish Multiscale Dynamics Analysis - In Progress *(Iterative Coarse Graining (ICG), Python)*

- Implementing a neuroscience paper's mathematical model to uncover multiscale spatial organization of neural dynamics
- Translating and adapting the Iterative Coarse Graining (ICG) algorithm to analyze zebrafish brain data
- Exploring how different brain regions exhibit hierarchical structure through spatial re-embedding

EEG-based Attention Analysis *(BrainFlow, Python, Signal Processing, EEG)*

- Designed and conducted EEG experiments to measure attentional shifts during task performance
- Preprocessed EEG data (e.g., filtering, epoching) and performed spectral analysis to examine attention-related brainwave patterns
- Investigated frequency-domain features (e.g., alpha and theta bands) as markers of cognitive state

Anticipatory Activity in a Songbird Vocal Motor Nucleus *(Spike train analysis, Python)*

- Analyzed spike trains from a vocal motor nucleus to identify neural activity predictive of song initiation
- Aligned firing rate data to song onset and compared pre- vs. post-onset activation using time-locked statistics
- Explored anticipatory neural coding strategies in complex motor sequences

Sarcastic Headline Generator *(Python, PyTorch, RNNs (LSTM, GRU), NLP)*

- Trained character-level recurrent neural networks (RNN, LSTM, GRU) on satirical headlines from The Onion to explore how well machine learning models can learn sarcasm
- Compared performance across architectures by evaluating grammar, sarcasm consistency, and headline realism

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- **Skills:** Python, Signal Processing, EEG, Git, Jupyter Notebook, EmotiBit, Lab Streaming Layer (LSL), PTP (Precision Time Protocol), Dante AV, Multimodal Data Synchronization, Neural Signal Processing, Behavioral Data Analysis, Java, C, Figma