Alexander Woods

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EDUCATION

University of California, San Diego **Sep 2023 - May 2027**
Bachelor of Science, Cognitive Science Spec. Machine Learning and Neural Computation *La Jolla, CA*

University of California, San Diego **Sep 2023 - May 2027**
Bachelor of Science, Mathematics – Applied Science, Minor in Philosophy *La Jolla, CA*

EXPERIENCE

University of California, San Diego
Undergraduate Research Assistant *San Diego, CA* · **Dec 2023 - Dec 2025**
- Designed a statistical pipeline to identify Depression Measures for 100+ patients
- Fixed bugs in the MATLAB pipeline and custom EEGLAB implementation to support accurate patient EEG data analysis

Instructional Assistant *La Jolla, CA* · **Sep 2024 - Dec 2024**
- Assisted in an introduction to Python lab, helping 60+ students a week.
- Supported students in developing independent final projects in Python, using libraries such as NumPy, pandas, and scikit-learn to help them complete project work
- Provided timely feedback on student work and answered Python-related questions, helping students resolve issues and make progress on lab and project assignments

AI Brain Science Programmer - Student *La Jolla, CA* · **May 2026 - Jun 2026**
- Extended existing NEMAR EEG datasets through a TUI-based workflow that added richer dataset information, using Git and Cursor to support consistent updates
- Delivered dataset contributions following an Agile methodology coordinated in Jira.

DataAnnotation.tech
Data Annotator – Software Engineering *Remote* · **Jun 2026 - Present**
- Apply reinforcement learning from human feedback (RLHF) to fine-tune large language models, improving response quality, safety, and task alignment
- Authored detailed model feedback based on safety, helpfulness, and task alignment criteria, helping improve the quality and reliability of large language model responses
- Identify and fix bugs in open-source libraries with assistance from AI agents, improving library reliability and software quality

PROJECTS

Spiking Neural Network **Mar 2026 - Present**
- Python, GitHub, Numpy, Jax
- Designed Biologically-inspired Custom Neural Network Architecture
- Designed LIF Neuron Based on Contemporary Research
- Rederived Classical Computational Neuroscience models to model neural behavior
- Derived Surrogate Gradient Descent based on Contemporary research.

EEG Lie detection **Jan 2025 - Mar 2025**
- Python, Scikit-Learn, Jupyter Notebook, GitHub
- Group Project where we recorded EEG data and predicted when someone lied.
- Developed Real time EEG GUI and stream under 100ms of delay end-to-end
- Collaborated to Complete project deadline within 10 weeks using Github.
- Designed Machine Learning Pipeline to classify eight channel EEG data with 75% accuracy.

Conceiva **2026**
- Hackathon Project (48 Hours)
- Digital Telehealth Platform for couples, genetic counselors, and Fertility clinics
- Designed Database and Frontend within 24h as an AI native platform with FastAPI, AWS, and Vercel.
- Integrated AI tools with Google Gemini and our own Sperm Motility Risk identification tool to predict donor viability in order to cut costs on genetic testing.

TECHNICAL SKILLS

Languages: Java, Python, Matlab, HTML/CSS
Developer Tools: Git, PyCharm, Cursor, Pytest, AWS, Docker
Libraries: Pandas, NumPy, Matplotlib, seaborn, EEGLAB, sci-kit learn, Keras, Tkinter
Other: Powershell, Bash, Git-annex, WSL, Ubuntu