FLYNN O'CONNELL

Neuroscientist | Software Developer

FlynnOConnell@gmail.com | (518) 918-1741 | Binghamton, NY | FlynnData.org | github.com/NeuroPyPy

Summary: Published Neuroscientist and Software Developer with a strong background in scientific computing, image analysis, and data processing. Expertise in Python, C/C++, and MATLAB, with a focus on data processing and visualization. Proficient in machine learning and emerging mathematical theory. Passionate about learning, improving, and staying at the forefront of emerging technologies and scientific theory.

WORK EXPERIENCE

Research Scientist
Binghamton University   December 2018 - Present Date. Binghamton, NY

- Responsible for processing and analysis of one-photon calcium imaging, optogenetic and electrophysiological datasets.
- Demonstrated ability to multitask and work within tight timelines while maintaining high-quality deliverables.
- Integrated, validated, and documented complex codebases for processing intricate datasets, emphasizing comprehensive documentation and code quality.
- Deployed and maintained version-controlled libraries in Python, C++, and MATLAB to streamline code management and facilitate collaboration.
- Built machine learning models utilizing TensorFlow and SciKit-learn Python libraries for advanced data analysis, focusing on image processing and classification.
- Developed an algorithm to use Victor/Purpura spike distance from scientific paper to a spike-distance classification task.
- Designed and proctored training sessions for colleagues to enhance their understanding and application of scientific literature and data processing techniques.
- Created multiple data-processing repositories using Python and C++ to support various neuroimaging research initiatives, contributing to the advancement of knowledge in the field.

PROJECTS/PORTFOLIO

Calcium Imaging Data Analysis Package (Python, C++)   **https://github.com/NeuroPyPy/CalciumAnalysis**
- Process, load and integrate large multi-faceted dataset for statistics and visualization.
- Preprocess dataset for outliers, trends, and deviations.

Neuroexplore (Python, C++)   **https://github.com/NeuroPyPy/Neuroexplore**
- An interactive data visualization and exploration tool for neuroscience data.
- Provides real-time analysis and visualization of neural activity.

Metric-Space-Analysis (Python, C, MATLAB)   **https://github.com/NeuroPyPy/Neuroexplore**
- Software to calculate distance matrix given point-process spike trains.
- Calculates theoretical information from spike timing to be used in classification.

Web-dataviewer (JavaScript, Python)   **https://github.com/NeuroPyPy/web-dataviewer**
- Web-based data visualization and sharing template.
- Used to build locally hosted data sharing websites.

EDUCATION

Bachelor of Science in Integrative Neuroscience & Psychology
State University of New York at Binghamton, 2018 | Dean's list | Presidents Award

TECHNICAL SKILLS

Languages: Python, SQL, Java, C++, JavaScript, MATLAB, HTML, CSS
Libraries: Plotly, Matplotlib, Dash, Numpy, Pandas, Tensorflow, Keras, SciKit-learn
Databases: Oracle, SQL, Google Cloud
Other: Git, Linux/Unix, Bash, Shell