

SUMMARY

I am driven to solve complex challenges and leverage my skills across various domains, including neuroscience, software development, deep learning engineering, neuromorphics and advanced analytics. My expertise spans multidisciplinary problem-solving, encompassing hands-on software development, deep learning model implementation, and the design of robust data pipelines. With academic, industry, and non-profit experiences, I am eager to apply my abilities to address real-world problems and thrive in collaborative environments.

EXPERIENCE

- **Postdoctoral Associate** Ithaca, USA
Cornell University - Computational Physiology Lab *September 2021 - Present*
 - **Brain-Inspired algorithms:** Develop innovative brain-inspired algorithms able perform learning being robust against unpredictable inputs using custom simulation software
 - **Neuromorphics:** Translate brain-inspired algorithm code to a state compatible with latest neuromorphic hardware capabilities allowing edge device support
 - **Computer vision - Behavioral software development:** Development of Annolid (see here), a software leveraging deep learning approaches (instance segmentation, SAM, grounding-dino, Yolo) to track animal and perform behavioral classification
- **Volunteer and co-organizer** Remote
Neuromatch - Non-profit organization *April 2020 - Present*
 - **Neuromatch Academy:** Worldwide support for equitable participation in scientific research. Help providing open-source teaching materials and courses with live instruction classrooms for neuro and climate science.
 - **Neuromatch Conference:** Co-organizer of worldwide neuroscience conferences and matching events. Connect scientists to form the social network needed to succeed in conducting and sharing research. Developed code to make conference management easier (see here)
- **Volunteer Research Scientist - Neuroscience-inspired AI, Continual Learning** Remote
ContinualAI - Non-profit research organization *January 2020 - Present*
 - **Goal:** Support the production, organization and dissemination of original research on continual learning with technical research, open source projects and tools that can make the life of a continual learning researcher easier.
 - **ContinualAI Lab:** Contributor to the open-source ContinualAI Avalanche library (see here), support ongoing collaborations
- **Research Scientist Consultant** Redwood City, USA
Numenta Inc *April 2021 - April 2022*
 - **Project:** Develop brain-inspired deep learning models based on dendritic computations and sparsity in continual learning and robotic settings (see here)
- **Data Scientist - ML Engineer** California, USA
Quantum Ventura Inc *March 2021 - August 2021*
 - **ML engineering:** End-to-end machine learning pipeline development: data pre-processing (ETL), deep neural network model design, data analysis and visualization for various client-specific datasets (e.g. DOD, DOE, Navy).
 - **Sample Projects:** Examples of work include using deep neural network to detect substances from hyperspectral and multispectral imaging with a translation to neuromorphic hardware (BrainChip), innovative fuzzing software development, deep neural network verification and validation of various datasets
- **Postdoctoral Associate** New York, USA
New York University - Center for Neural Science *April 2019 - December 2020*
 - **Software development:** Develop a custom electrophysiological and imaging software (see here)
 - **Analysis pipeline development:** Develop a high-throughput data-driven imaging pipeline aimed at processing high temporal resolution biological images (see here)
 - **Electrophysiology:** Running in-vitro whole-optical electrophysiological experiments, analysis and interpretation
- **Postdoctoral Research Scientist** New York, USA
Columbia University - Mortimer B. Zuckerman Mind Brain Behavior Institute *September 2019 - December 2020*
 - **Modeling:** Building models of complex neural data, deep neural networks, collaborative work on open source packages
- **Neurosciences PhD** Lyon, France
Lyon Neuroscience Research Center *Sept 2014 - Jan 2018*
 - **Behavior:** Behavioral tracking, image analysis, behavior classification
 - **Cellular, molecular and systems neuroscience:** Brain data collection, analysis, interpretation and publication
 - **Data analysis:** Complex data analysis, probability and statistics
 - **Student supervision:** Supervise students through specific project
 - **Teaching:** Teaching undergraduate and graduate level courses in neuroscience, biology, physiology, literature search

EDUCATION

- **PhD in Neuroscience** Lyon, France
Claude Bernard Lyon 1 University and Lyon Neuroscience Research Center 2014 – 2018
- **Graduate studies: Master 2, research-oriented in Neuroscience** Lyon, France
Claude Bernard Lyon 1 University 2013 – 2014
- **Graduate studies: Master 1: Integrative biology: Physiology and Neuroscience** Calgary, Canada
University of Calgary and Lyon 1 University 2012 – 2013
- **Undergraduate studies: Bachelor of Science, specialized in Physiology** Lyon, France
Claude Bernard Lyon 1 University 2009 – 2012

SKILLS

- **Technical Skills**
 - **Neuroscience:** Neural signals analysis, Electrophysiology, Microscopy, Behavior, Animal surgery
 - **Languages:** Python, R, Bash, Yaml, Markdown, Latex, Make
 - **Deep learning, machine learning and modelling frameworks:** Pytorch, Tensorflow, Keras, Numpy, Scikit-learn
 - **Deep learning tools and libraries:** Aim-stack, Weights and Biases, Ray
 - **Visualization tools and libraries:** Dash, Plotly, Matplotlib, Seaborn, Graphviz
 - **Other tools and libraries:** Pandas, Quarto, PyQT5, openCV
 - **Platform, systems, containerization:** Git, Github, Github Actions, Gitea, AWS, Proxmox, Docker, Docker Compose, LXC
 - **Modeling, statistics, probabilities:** ANOVA, MANOVA, regression, PCA, ICA, clustering, t-SNE ...
 - **Software development and deployment:** Continual Integration and Continual Deployment, MLOps, Test Driven Software Development, Infrastructure as Code (Ansible)
 - **Generative AI:** Stable Diffusion, LangChain, LlamaIndex, GPT4All
- **Soft Skills**
 - **Languages:** French (native), English (fluent), Spanish (Beginner)
 - **Problem solver:** Finding creative ways to implement new ideas
 - **Mentoring:** Supervising students through start to end of their projects
 - **Communication:** Written and oral communication skills from technical to more general public
 - **Project Management:** Organize multiple projects in parallel
 - **Collaboration:** Work in collaborative in person and remote environments
 - **Adaptability:** Capacity to adapt rapidly to changing work demands