Christopher Mochizuki

Seattle, WA 98102 · mochic808@gmail.com · (808) 223-5545 · mochic.github.io

SUMMARY

Software engineer with 10+ years of experience building production-grade systems, scalable data pipelines, and automation tools in scientific and enterprise environments. Strong in Python, cloud data platforms, and full-stack development for research and AI/ML workloads. Proven ability to modernize legacy codebases, collaborate cross-functionally, and deliver reliable solutions in fast-paced, data-intensive settings.

EXPERIENCE

Allen Institute for Brain Science, Seattle, WA

Software Engineer (2023-2025) · Data Analyst (2019-2023) · Research Associate I-II (2013-2019)

- Promoted multiple times over a 12-year tenure based on technical innovation, team impact, and initiative in building critical scientific software systems.
- Built and maintained robust Python-based systems to automate neuroscience experiments, validate datasets, and manage day-to-day lab operations.
- Designed scalable ETL pipelines using Pydantic and Mypy for high-throughput data ingestion and transformation.
- Created tools for real-time QA, experiment tracking, and reproducible research using SQL, Jupyter, Pandas, and Matplotlib.
- Modernized legacy codebases, implemented type safety, and improved maintainability across internal platforms.
- Augmented experiment API to support dynamic configuration of experimental inputs, improving pipeline adaptability and reducing the need for hardcoded logic.
- Spearheaded integration of PyQt GUIs and third-party hardware into subject health tracking and behavioral monitoring workflows.
- Co-authored publications in Nature and Neuron through contributions to data pipelines and analysis tooling.

EDUCATION

B.S. Physics, Biophysics - University of Washington, 2013

TECHNICAL SKILLS

Languages: Python (2.7.15, 3.7+), SQL, JavaScript/TypeScript, Bash
Frameworks: FastAPI, Flask, React, Qt
Tools: Git, Docker, Mypy, PDM, Jupyter
Databases: PostgreSQL, AWS Redshift, MongoDB, Redis, AWS DocumentDB
Data: Pandas, NumPy, Polars, PyArrow, Dask, Matplotlib, Seaborn
Cloud: AWS ecosystem (DocumentDB, Redshift, Lambda, EC2)

RESEARCH PUBLICATIONS (Selected)

- Survey of spiking in the mouse visual system reveals functional hierarchy, Nature, Apr 2021
- SHIELD: Skull-shaped hemispheric implants enabling large-scale electrophysiology datasets, Neuron, Jul 2024

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- Full list available at mochic.github.io