

Gabriel Selzer

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EXPERIENCE

Software Engineer

May 2024 – Present

Eliceiri Lab (LOCI), University of Wisconsin-Madison

Madison, WI

- Extracted [ndv](#) from internal component to standalone library, enabling reuse across bio-image tools
- Built histogram visualization for real-time microscope tuning based on user research with imaging scientists

(Graduate) Research Assistant

Aug 2017 – May 2024

Eliceiri Lab (LOCI), University of Wisconsin-Madison

Madison, WI

- Built napari-imagej, enabling napari users to access Fiji's decades of image processing tools without Java expertise
- Architected SciJava Ops declarative algorithms framework, targeted for inclusion in Fiji core, reaching thousands of daily users

PROJECTS

[ndv](#)

Jun 2024 – Present

n-dimensional data viewer

Python, VisPy, Qt

- Co-developed an evented MVC architecture enabling deployment across PyQt, Jupyter, and WxPython with pluggable backends (VisPy, pygfx)
- Implemented asynchronous histogram visualization with multi-channel support, handling remote/large datasets through pipelined slicing and display updates
- **Impact:** 81 Github stars, approximately 1000 downloads per month, central component of [pymmcore-gui](#)

[napari-imagej](#)

Dec 2021 – Aug 2023

Interoperable user interface bridging napari and Fiji/ImageJ

Python, Java, napari, Fiji

- Leveraged zero-copy data conversions between ImageJ and NumPy for high-performance interoperability
- Engineered asynchronous ImageJ2 initialization with Qt QThreads to avoid seconds to minutes of UI blocking
- Implemented automatic UI generation for Fiji plugins, enabling invocation as if they were native Python functions
- **Impact:** 31 Github stars, approximately 80 downloads per month, communications paper published in [Nature Methods](#)

[SciJava Ops](#)

Apr 2018 – Sep 2024

Declarative Image Processing for Fiji/ImageJ

Java 11, Fiji, OpenCV

- Designed declarative algorithm discovery and invocation across multiple libraries (ImageJ, OpenCV, NumPy)
- Implemented type-based algorithm routing with automatic data conversion, enabling data-structure-agnostic invocation
- **Impact:** Slated for inclusion in Core Fiji, Paper published in [Frontiers in Bioinformatics](#)

EDUCATION

University of Wisconsin, Madison

Madison, WI

Computer Science, M.S.

May 2024

Electrical Engineering, B.S.

Dec 2021

Computer Science, B.S.

Dec 2021

PUBLICATIONS

G. J. Selzer et al., "Scijava ops: an improved algorithms framework for fiji and beyond", [Frontiers in Bioinformatics Volume 4 - 2024](#), 10.3389/fbinf.2024.1435733 (2024).

G. Selzer et al., "Napari-imagej: imagej ecosystem access from napari", [Nature Methods](#) **20**, 1443–1444 (2023).

N. A. Gahm et al., "New extensibility and scripting tools in the imagej ecosystem", [Current Protocols](#) **1**, e204 (2021).

TECHNICAL SKILLS

Professional: Python, Java, Git/GitHub, IntelliJ, VSCode, Qt, Unix, Jupyter

Academic/Hobbyist: Tensorflow, PyTorch, Rust, C/C++, WebGPU, Javascript/HTML/CSS, CUDA