

# Gabriel Selzer

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## EXPERIENCE

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### Software Engineer

*Eliceiri Lab (LOCI), University of Wisconsin-Madison*

May 2024 – Present

Madison, WI

- Developed custom Python user interfaces for custom Laser-Scanning and Polarization Microscopes
- Maintained open-source Python toolkits for general-purpose bio-image acquisition

### (Graduate) Research Assistant

*Eliceiri Lab (LOCI), University of Wisconsin-Madison*

Aug 2017 – May 2024

Madison, WI

- Developed tooling for Java+Python image processing interoperability
- Developed and maintained image processing toolkits within the Fiji ecosystem

## PROJECTS

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### ndv

*n-dimensional data viewer*

Jun 2024 – Present

Python, VisPy, Qt

- Co-developed declarative, evented data model
- Developed histogram view for real-time data analysis
- **Impact: 81 Github stars, approximately 1000 downloads per month, central component of [pymmcore-gui](#)**

### napari-imagej

*Interoperable user interface bridging napari and Fiji/ImageJ*

Dec 2021 – Aug 2023

Python, Java, napari, Fiji

- Implemented transparent, on-demand conversions between ImageJ data structures and NumPy/Python equals
- Engineered asynchronous ImageJ2 initialization to avoid blocking napari's user interface
- **Impact: 31 Github stars, approximately 80 downloads per month, communications paper published in [Nature Methods](#)**

### SciJava Ops

*Declarative Image Processing for Fiji/ImageJ*

Apr 2018 – Sep 2024

Java 11, Fiji, OpenCV

- Engineered a unified syntax for algorithm invocation, covering ImageJ, OpenCV, and NumPy
- Engineered an abstract plugin discovery system with backends in YAML and Java's JPMS
- **Impact: Slated for inclusion in Core Fiji, Paper published in [Frontiers in Bioinformatics](#)**

## EDUCATION

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### University of Wisconsin, Madison

*Computer Science, M.S.*

*Electrical Engineering, B.S.*

*Computer Science, B.S.*

Madison, WI

May 2024

Dec 2021

Dec 2021

## PUBLICATIONS

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G. J. Selzer, C. T. Rueden, M. C. Hiner, E. L. Evans, D. Kolb, M. Wiedenmann, C. Birkhold, T.-O. Buchholz, S. Helfrich, B. Northan, A. Walter, J. Schindelin, T. Pietzsch, S. Saalfeld, M. R. Berthold, and K. W. Eliceiri, "Scijava ops: an improved algorithms framework for fiji and beyond", [Frontiers in Bioinformatics Volume 4 - 2024](#), 10.3389/fbinf.2024.1435733 (2024).

G. Selzer, C. Rueden, M. Hiner, E. Evans, K. Harrington, and K. Eliceiri, "Napari-imagej: imagej ecosystem access from napari", [Nature Methods](#) **20**, 1443–1444 (2023).

N. A. Gahm, C. T. Rueden, E. L. Evans III, G. Selzer, M. C. Hiner, J. V. Chacko, D. Gao, N. M. Sherer, and K. W. Eliceiri, "New extensibility and scripting tools in the imagej ecosystem", [Current Protocols](#) **1**, e204 (2021).

## TECHNICAL SKILLS

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

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