David Ross

Software engineer and data scientist with a Master of Science degree in bioinformatics and computational biomedicine from Oregon Health & Science University. Strong programming skills, motivated to contribute on a technical team partnering with biologists to leverage computational tools to advance biology and biomedical research especially by developing highly performant, scalable, interactive data analysis and visualization tools.

Key Skills

- Software development
- Data visualization
- Technical presentations
- Image analysis
- R
- Shiny
- Python
- Bash scripting
- Docker
- Git
- Dask
- NumPy

Work Experience

Data Scientist — NanoString Technologies Inc. — Seattle, Washington (Remote) — 2021-present

- Created internal tool for interactively visualizing images and data by writing a plugin Python module to the napari viewer, including tools for efficiently transforming large datasets using Dask and Zarr.
- Method development and implementation for a novel spatial multiomics platform including applying statistical methods from spatial analysis and image analysis leveraging tools in the SciPy stack.
- Contributed to figures—including cover—and analysis for published manuscript announcing technology.
- Analysis of pancreatic tissue data for medical researchers studying diabetes.
- Collaborated with external software contractors to develop commercial software.
- Technical mentor to biologists and junior engineers.

Biostatistics Intern — NanoString Technologies Inc. — Seattle, Washington (Remote) — 2021

- Developed interactive visualization tool using R Shiny for exploring spatial transcriptomics data.
- Contributed to development of new data analysis pipeline for technology access program.
- Presented interactive visualization tool to senior leadership as well as current customers.

Bioinformatics Scientist Intern — Providence Cancer Center — Portland, Oregon — 2020

- Working closely with immunologist principal investigator, performed bioinformatics analyses to support cancer immunology research.
- Used Seurat R package to analyze scRNA-seq data from tumor-infiltrating lymphocytes.
- Created two interactive apps for data visualization and analysis of multiplex immunohistochemistry and TCR-seq data using R shiny package.
- Created visualization for scientific journal article published in *Cancer Immunology Research*.

Education

Master of Science — Oregon Health & Science University — Portland, Oregon — 2021

- Major: Bioinformatics and computational biomedicine
- Related coursework: Statistics, Machine Learning, Bioinformatics Algorithms, Computational Genetics, Data Visualization

Post-Baccalaureate — Portland State University — Portland, Oregon — 2018–2019

- Major: Biology
- Related coursework: Genetics, Molecular Biology, Cell Biology, Virology, Cancer Biology

Massive Open Online Courses — edX.org — 2016–2018

- Related coursework: Chemistry, Biology, Differential Equations, Data Science

Bachelor of Arts — Davidson College — Davidson, North Carolina — 1998

- Major: Economics

Additional Work Experience

Independent Software Developer — David Ross Software — Portland, Oregon — 2004–2014

- Developer of Windows, Mac, and iOS apps.
- Created multiple apps for iOS platform including Uni Sudoku which was featured in the launch of the App Store for iPad.
- Created the Knit Buddy iPhone app in partnership with *Vogue Knitting*.

Software Developer — American Management Systems — Fairfax, Virginia — 1998–2002

- Developed market-leading financial management software sold to federal civilian agencies with up to 5000+ users.
- Technical manager in charge of release-specific enhancements and responsible for improving software development processes from design stages through implementation.
- C++ application server and Smalltalk GUI development.
- Complex data manipulation with SQL on various relational database platforms.

Publications

- He, S. et al. High-plex imaging of RNA and proteins at subcellular resolution in fixed tissue by spatial molecular imaging. Nat Biotechnol 40, 1794–1806 (2022). doi:10.1038/s41587-022-01483-z.
- Duhen, R. *et al.* PD-1 and ICOS co-expression identifies tumor-reactive CD4 T cells in human solid tumors. *Journal of Clinical Investigation* (2022) doi:10.1172/JCI156821.
- Rajamanickam, V. *et al.* Robust Antitumor Immunity in a Patient with Metastatic Colorectal Cancer Treated with Cytotoxic Regimens. *Cancer Immunol Res* (2021) doi:10.1158/2326-6066.CIR-20-1024.
- Danaher, P. et al. Insitutype: likelihood-based cell typing for single cell spatial transcriptomics. (2022) doi:10.1101/2022.10.19.512902.
- Kolar, G. R., Ross, D., Killingbeck, E. E., Samson, W. K. & Yosten, G. L. C. Spatial molecular imaging of the human type 2 diabetic islet. (2023) doi:10.1101/2023.01.04.519955.