

Melanie Davila

SOFTWARE ENGINEER

CONTACT

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SKILLS

Proficient

- ☐ Python
- ☐ Pandas
- ☐ AWS
- ☐ R
- ☐ Shiny
- ☐ JavaScript
- ☐ Git
- ☐ Unix
- ☐ HPC

Familiar

- ☐ Docker
- ☐ Terraform
- ☐ Bash
- ☐ React.js
- ☐ Redux
- ☐ SQL
- ☐ HTML/CSS
- ☐ Ruby
- ☐ Rails

WORK EXPERIENCE

Icahn School of Medicine at Mount Sinai

May 2017 - July 2019

Associate Computational Scientist (Software Engineer)

New York, NY

- ☐ Designed and implemented AWS infrastructure, streamlining data processing, analysis, and storage workflows and reducing hands-on data processing and primary analysis time by 71%
- ☐ Developed Python/pandas-based data pipelines for single-cell RNA-seq and CITE-seq experiments, enabling R&D, and leading data processing and primary analysis efforts for \$12M clinical trial
- ☐ Leveraged HPC clusters to develop and run mass cytometry pipelines, providing researchers with visualizations of high-dimensional data
- ☐ Created applications with R, Shiny, and ggplot2 for mass cytometry quality control, increasing data integrity and providing a user-friendly interface for lab staff to export and visualize data

Memorial Sloan Kettering Cancer Center

Oct 2014 - Oct 2016

Research Study Assistant II

New York, NY

- ☐ Managed over 300 pediatric oncology clinical trial enrollments and performed analyses of corresponding data, facilitating peer-reviewed publications and contributing to outstanding performance during audits

RUCDR Infinite Biologics

Dec 2013 - Jun 2014

Laboratory/Technical Assistant (Temporary)

Piscataway, NJ

- ☐ Performed SNP analyses on DNA samples, gathering data regarding human disease

EDUCATION

App Academy

Dec 2016 - Mar 2017

- ☐ Rigorous full stack web development course with ~3% acceptance rate

Rutgers University

Sep 2009 - May 2013

- ☐ Major: Genetics, B.A. (Magna Cum Laude)
- ☐ Minor: Public Health

VOLUNTEER EXPERIENCE

Mount Sinai Center for Excellence in Youth Education

Biotechnology Educator

Oct 2018 - July 2019

New York, NY

- ❑ Collaborated with volunteers to develop and deliver educational activities, inspiring youth from underrepresented groups to explore careers in biotechnology

Casa do Caminho

STEM Educator

Jun 2013 - Dec 2013

Xerém, Brazil

- ❑ Designed and implemented STEM education initiatives, leveraging limited resources to expose youth and community members to subjects not otherwise taught in the local region

OPEN SOURCE PROJECTS

Cellranger Pipeline | **Primary Contributor** | **AWS, Python, Bash**

[GitHub](#)

A cloud-based deployment of the 10x Genomics Cell Ranger software

- ❑ Migrated genomics data processing pipeline from HPC to AWS Batch, streamlining user workflow
- ❑ Reduced hands-on time by 71% with automation and decreased pipeline runtime by 52% with dedicated resource allocation
- ❑ Implemented infrastructure management via Terraform, providing an efficient and reproducible means to change and version infrastructure
- ❑ Packaged scripts and 3rd-party dependencies into Docker images in order to create and distribute consistent runtime environments

cytutils | **Major Contributor** | **R, Shiny**

[GitHub](#)

A package for cytometry quality control and reproducibility utilities

- ❑ Created GUI including interactive data visualization to provide an enhanced user experience and increased transparency for researchers performing QC on cytometry data via the provided algorithms

(Re)Mission Possible | **Sole Developer** | **JavaScript, Easel.js**

[Live](#) | [GitHub](#)

A browser-based antibody-flinging, cancer butt-kicking game

- ❑ Leveraged the Easel.js library and the attributes of its shape class in order to provide accurate collision detection, enhancing the UX

PUBLICATIONS

- ❑ Lee, B. H., Kelly, G., Bradford, S., **Davila, M.**, Guo, X., Amir, E. D., et al., (2019). A Modified Injector and Sample Acquisition Protocol Can Improve Data Quality and Reduce Inter-Instrument Variability of the Helios Mass Cytometer. *Cytometry Part A*. doi:10.1002/cyto.a.23866
- ❑ Perekatt, A.O, Valdez, M.J., **Davila, M.**, Hoffman, A., Bonder, E.M., Gao, N., & Verzi, M.P. (2014). YY1 is indispensable for Lgr5+ stem cell renewal. *Proceedings of the National Academy of Sciences*, 111(21) 7695-7700.
- ❑ **Davila, M.** (2011). The incomprehensible nature of the origin of life. *Dialogues@RU*, 7, 69-81.