Melanie Davila

SOFTWARE ENGINEER

CONTACT

melanie@melaniedavila.com

New York, NY

www.melaniedavila.com

www.github.com/melaniedavila

www.linkedin.com/in/melaniedavila/

SKILLS

Proficient

- ❑ Python
- ❑ Pandas
- ❑ AWS
- ❑ R
- ❑ Shiny
- ❑ Docker
- ❑ JavaScript
- ❑ Git
- ❑ Unix
- ❑ HPC

Familiar

- ❑ React.js
- ❑ Redux
- ❑ Ruby
- ❑ Rails
- ❑ Terraform
- ❑ SQL
- ❑ HTML
- ❑ CSS

WORK EXPERIENCE

Icahn School of Medicine at Mount Sinai **May 2017 - July 2019**
Associate Computational Scientist (Software Engineer) New York, NY

- ❑ Design and implement AWS infrastructure, streamlining data processing, analysis, and storage workflows and reducing hands-on data processing and primary analysis time by 71%
- ❑ Develop Python/pandas-based data pipelines for single-cell RNA-seq and CITE-seq experiments, enabling R&D endeavors and leading data processing and primary analysis efforts for $12M clinical trial
- ❑ Leverage HPC clusters to develop and run machine-learning pipelines, providing researchers with visualizations of high-dimensional data
- ❑ Create 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 **Oct 2018 - Present**
Biotechnology Educator New York, NY

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

Casa do Caminho **Jun 2013 - Dec 2013**
STEM Educator 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 cellranger pipeline

- ❑ Migrated genomics data processing pipeline from HPC to AWS Batch, streamlining developer workflow, reducing hands-on time by 71%, and decreasing pipeline runtime by 52%
- ❑ Implemented infrastructure management via Terraform, providing an efficient and reliable means to change and version infrastructure
- ❑ Ensured standardization of development and production environments through utilization of Docker, equipping pipeline developers with a means to efficiently fix bugs and add new modules

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. BioRxiv. doi:10.1101/600130
- ❑ 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.