Melanie Davila

SOFTWARE ENGINEER

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WORK EXPERIENCE

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

- Design and implement AWS infrastructure to create streamlined data processing and data storage workflows
- Leverage high-performance computing clusters to run and debug machine-learning and data processing pipelines, providing researchers with high-quality data and visualizations of high-dimensional data
- Develop Python/pandas-based data processing pipelines for single-cell RNA-seq and CITE-seq experiments, enabling immunologists to explore the relationship between gene and protein expression
- 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 information

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 susceptibility to disease

OPEN SOURCE PROJECTS

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.

SKILLS

Python/Pandas

R/Shiny

Ruby/Rails

JavaScript

React.js/Redux

SQL

Git

AWS

HTML/CSS

EDUCATION

App Academy
Dec 2016 - Mar 2017
Rigorous full stack web development course with ~3% acceptance rate

Rutgers University
Sep 2009 - May 2013
B.A., Genetics
Minor: Public Health
Magna Cum Laude

VOLUNTEER

Casa do Caminho
Xerém, Brazil
Jun 2013 - Dec 2013
STEM Educator
Designed and implemented STEM education initiatives, leveraging limited resources to expose youth and community members to subjects not otherwise taught in the local region