Patrick V. **O'Melveny**

San Francisco, CA

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Education

San Francisco State University *San Francisco, CA*
Candidate for Master of Arts in Mathematics *Expected 2022*

Sonoma State University *Rohnert Park, CA*
Bachelor of Arts in Music *2014*

Research

Mixed Volumes of Normal Complexes *San Francisco State University*
Advisor: Dustin Ross *July 2021 - Current Work*

- Developing the concept of mixed volumes of normal complexes of tropical fans
- Working towards geometric proofs of the log-concavity of mixed degrees of divisors in Chow rings of tropical fans

Teaching

MATH 198: Prelude to Calculus II *San Francisco, CA*
San Francisco State University *Planned Spring 2022*

MATH 197: Prelude to Calculus I *San Francisco, CA*
San Francisco State University *Fall 2021*

MATH 228 Supplemental: Calculus I, 4th Hour *San Francisco, CA*
San Francisco State University *Fall 2021*

Work Experience

San Francisco State University *San Francisco, California*
Research Assitant *Aug 2021 - Current*

- Perform research under the guidance Dustin Ross in combinatorial algebraic geometry
- Supported by NSF RUI: Compacitfying moduli spaces of orbits, covers, and curves

San Francisco State University *San Francisco, California*
Graduate Teaching Associate *Aug. 2021 - Current*

- Instructor of Record for undergraduate precalculus classes

Posit Science Corporation *San Francisco, California*
Software Engineer *Jan. 2017 - June 2021*

- Developed software for the needs of multiple research studies on neuroplasticity
- Maintained and extended data pipelines, allowing for efficient and secure access to clincal data
- Developed back-end event scheduling systems and data models for efficient distributed computing

Posit Science Corporation *San Francisco, California*
Research Associate & Data Analyst *Jul. 2015 - Jan. 2017*

- Created in-house tools for automation of R&D tasks; including study measure analytics, reporting dashboards, graphing tools and study-flow monitoring
- Performed exploratory data analysis for research studies and produced graphs and figures for publications
- Coordinated multi-site research trial, maintaining compliance with FDA regulations for Phase II clinical research

Northern California Institute for Research and Education *San Francisco, California*
Research Associate II *Mar. 2014 - Jul. 2015*

- Worked on a novel fMRI experiment on neurotransmitters and social cognition in Schizophrenia
- Created an analysis pipeline for the results of fMRI and MEG expereiments

Sonoma State University

Rohnert Park, California

INSTRUCTIONAL STUDENT ASSISTANT

Sep. 2011 - Aug. 2013

- Tutored students in Music Theory I-IV, Music History, and Ear Training

Outreach

Mathematistas

San Francisco, CA

MEMBER, FACILITATION TEAM

Fall 2020 - Current

Mathematistas is a student community that supports and builds towards gender equity in pursuit of higher mathematics.

Learning Home Volunteers

Redwood City, CA

VOLUNTEER

Fall 2021

Learning Home Volunteers is a non-profit organization working to address the kindergarten-readiness gap by empowering and equipping parents to engage their young children in joyful learning through play.

Technical Skills

Programming Languages	LaTeX, Python, C++, R, Haskell, Julia
Software	Linux, Git, Mathematica, Amazon Web Services, Jupyter Notebook
Statistical	Hypothesis testing, Principal component analysis and dimensionality reduction, Regression models
Languages	English (native), French (intermediate)