

# Brad Monk

computational scientist

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## PROFILE

Currently finishing my doctoral thesis research at the UCSD Center for Neural Circuits & Behavior, on topics related to computational neuroscience and genomics and concurrently working on-contract as a data scientist for Quigg Engineering where I oversee a transportation infrastructure modeling project.

## EDUCATION

Ph.D. Computational Neuroscience  
Center for Neural Circuit Behavior  
University of California San Diego

M.A. Behavioral Neuroscience  
Center for Behavioral Teratology  
San Diego State University

B.S. Molecular Biology  
B.A. Psychology  
San Diego State University

## SKILLS

### // TECHNICAL

- Statistics · Machine Learning
- Data Analysis · R · MATLAB
- Python · Image Analysis · GIS
- Omics · Data Visualization
- Neuroscience · Web Dev
- Bioinformatics · SQL · Excel
- Analytics · Databases

### // GENERAL

- Public Speaking & Presenting
- Experimental Design
- Teaching (University-lvl Stats)
- Science Communication
- Technical Writing

## HONORS

- SDSU Student of the Year  
Faculty Vote Selection
- Magna Cum Laude  
(3.93 SDSU GPA)
- Cal State Science Conf. Winner  
*Choline mitigates teratogenic effects of FAE*

### // PUBLICATIONS

- [bit.ly/BradMonkGoogleScholar](https://bit.ly/BradMonkGoogleScholar)

## PROFESSIONAL EXPERIENCE

**Data Scientist** Quigg Engineering 2018-2020

Project head and senior data scientist for a federally-funded (FHWA) research study (the Comprehensive Truck Size & Weight Limits Study). Prepared technical reports that detailed the impact of heavy commercial vehicles on local, state, and federal transportation infrastructure (e.g. bridges, state highways, local roadways). Quantified the impacts of actual and theoretical vehicles allowed to operate above current Federal truck size and weight limits

**Cofounder & CTO** OneSci Inc. 2015-2018

Cofounded a health-tech startup that develops tools to overcome addiction. As CTO I oversaw the development of a 'smart' locking cigarette case that connects to a mobile device via Bluetooth, along with the development of iOS/Android apps used to unlock the case. The apps implement various cognitive strategies to attenuate smoking (e.g. prevented unlocking within 50 meter radius of previous smoking location). I also performed a sundry of cofounder duties including patent writing, UX/UI, fundraising, etc.



**Doctoral Research** Center for Neural Circuits 2014-2020

### // GENOMICS & BIOINFORMATICS

- Used machine learning methods to identify novel genomic variants that confer protection or risk towards developing Alzheimer's Disease (AD).
- Trained a variety of architectures (e.g. neural nets, boosted trees, SVMs) on whole exome sequencing data from over 10,000 AD patients and non-dementia age-matched controls, and computed polygenic risk.

### // COMPUTATIONAL NEUROBIOLOGY

- Developed a model that explains how memories can persist for time periods far longer than the lifetimes of cellular molecules.
- Performed *in silico* simulation of dynamic molecular clustering in synapses
- Performed FRET 2-photon and glutamate uncaging / LTP experiments in slice cultures

## REFERENCES

Robert Malinow M.D., Ph.D. [rmalinow@ucsd.edu](mailto:rmalinow@ucsd.edu) +1.516.971.1228

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