

# Joseph Knox

650.709.7272 | joseph.edward.knox@gmail.com | Github: jknox13 | LinkedIn: Joseph Knox

## EDUCATION

### UNIVERSITY OF WASHINGTON

#### M.S. IN APPLIED MATHEMATICS

June 2018 | Seattle, WA

### UNIVERSITY OF WASHINGTON

#### B.S. IN INDUSTRIAL ENGINEERING

Minor in Applied Mathematics

June 2016 | Seattle, WA

## SKILLS

### TECHNICAL

**Languages:** Python • C • Java • R

**ML libs:** SkLearn • XGBoost • PyTorch

**DB (SQL):** Presto • Hive • MySQL • Spark

**Systems:** Linux (Arch, CentOS) • Docker

## OPEN SOURCE

### MCMODELS | MAINTAINER

2017 – 2018 | Python

Python library for mesoscopic full-brain connectivity models in mouse – built on top of the AllenSDK and Scikit-Learn APIs.

### RISTRETTO | PRIMARY CONTRIBUTOR

2018 | Python

Randomized matrix factorization library written in Python (numpy).

### CONTRIBUTOR TO

- Allensdk
- Scikit-learn

## COURSEWORK

### GRADUATE

Statistical Computing

Combinatorial Optimization

Computational Neuroscience

Statistical Analysis of Social Networks

Computational Methods - Data Analysis

### UNDERGRADUATE

Machine Learning

Stochastic Modeling/Decision Analysis

Linear and Network Programming

High-Performance Scientific Computing

## SUMMARY

I am a Data Scientist with 3+ years of experience driving business impact through research, analytics, and engineering. Throughout my diverse work experience, I have identified, communicated, and solved various levels of problems with close collaboration with cross-functional partners. The problems I'm most interested in working on problems require industry-leading solutions to solve: solutions that bridge the gap between research and production code.

## EXPERIENCE

### FACEBOOK

Sept 2018 - Present • 1 yr 6 mos

#### DATA SCIENTIST

San Francisco, CA

- Own analytic strategy focused on Instagram SMB advertiser value
- Identify product gaps and market opportunities, working with many cross-functional partners to influence product and marketing roadmaps
- Build end-to-end ML models to predict advertiser churn and retention lift
- Build and contribute to internal tools streamlining data visualization, ML modeling, and experimentation measurement
- Write data pipelines to support analysis, internal tools, and external personalized marketing campaigns

### ALLEN INSTITUTE FOR BRAIN SCIENCE

June 2017 - Sept 2018 • 1 yr 4 mos

#### DATA ANALYST

Seattle, WA

- Develop and implement novel models for full-brain connectivity
- Analyze heterogeneous, multi-scale experimental data
- Contribute to organizational open source software packages
- Research statistical, graph theoretic models of brain connectivity

### RATLAB LLC

July 2016 – Jan 2017 • 7 mos

#### RESEARCH INTERN

Seattle, WA

- Designed and conducted experiments for product R&D
- Optimized hardware design through the use of statistical ML techniques

### COLLEGE WORKS PAINTING

Feb 2015 – Sept 2015 • 8 mos

#### MANAGER

Seattle, WA

- Acted as project manager sourcing clients and creating estimates for management of monetary funds
- Planned production schedule and successfully coordinated all projects, interacting with clients daily and ensured customer satisfaction
- Recruited, hired, and trained 3 employees

## SELECT PUBLICATIONS

- [1] J. A. Harris, S. Mihalas, et al. Hierarchical organization of cortical and thalamic connectivity. *Nature*, 575(7781):195–202, 2019.
- [2] J. E. Knox, K. D. Harris, et al. High-resolution data-driven model of the mouse connectome. *Network Neuroscience*, 3(1):217–236, 2019.
- [3] J. D. Whitesell et al. Whole brain imaging reveals distinct spatial patterns of amyloid beta deposition in three mouse models of alzheimer's disease. *Journal of Comparative Neurology*, 527(13):2122–2145, 2019.