

# Joseph Knox

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## 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

### PROGRAMMING

Advanced: Python

Intermediate: R • C • SQL • MATLAB

Novice: C++ • Java • OpenMP/MPI  
Bash/sh

## PROJECTS

### MCMODELS | MAINTAINER

Dec 2017 – | Python

Python library for mesoscopic full-brain connectivity models in mouse.

### RISTRETTO | PRIMARY CONTRIBUTOR

April 2018 – | Python

Randomized matrix factorization library written in Python.

### CONTRIBUTOR TO

- Allensdk
- Scikit-learn

## COURSEWORK

### GRADUATE

Statistical Computing

Combinatorial Optimization

Computational Neuroscience

Statistical Analysis of Social Networks

Computational Methods for Data

Analysis

### UNDERGRADUATE

Machine Learning

Stochastic Modeling/Decision Analysis

Linear and Network Programming

High-Performance Scientific Computing

## SUMMARY

A Bachelor of Industrial Engineering and a Master of Applied Mathematics with 1+ years researching statistical, graph theoretic models of brain connectivity. Throughout my diverse work experience I have identified, communicated, and solved various levels of problems through research, engineering, and with close collaboration with my teammates. I am a driven learner who thrives working with equally driven groups of researchers, engineers, and business-focused professionals. My goal is to use my applied problem solving abilities to impact the core business of the company I work for, and have fun learning in the process.

## EXPERIENCE

### FACEBOOK

Sept 2018 - Present • 1 yr 6 mos

DATA SCIENTIST

San Francisco, CA

- Retention
- Product
- Build internal tools
- Complex data pipelines
- A/B testing experimentation

### 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

### RATLAB LLC

July 2016 – Jan 2017 • 7 mos

RESEARCH INTERN

Seattle, WA

- Designed and conducted experiments for product research and development
- Optimized hardware design through the use of statistical machine learning techniques

### COLLEGE WORKS PAINTING

Feb 2015 – Sept 2015 • 8 mos

MANAGER

Seattle, WA

- Acted as project manager creating estimates and invoices 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 and S. e. a. Mihalas. Hierarchical organization of cortical and thalamic connectivity. *Nature*, 575(7781):195–202, 2019.
- [2] J. E. Knox and K. D. e. a. Harris. High-resolution data-driven model of the mouse connectome. *Network Neuroscience*, 3(1):217–236, 2019.
- [3] J. D. e. a. Whitesell. 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.