# 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.

#### **CONTRIBUTER 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 to identified, communicated, and solved various levels of problems through research, engineering, and with close collaboration with my teamates. 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**

#### **ALLEN INSTITUTE FOR BRAIN SCIENCE** | DATA ANALYST

June 2017 - Present | 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 | RESEARCH INTERN

July 2016 - Jan 2017 | 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** | MANAGER

Feb 2015 - Sept 2015 | 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

#### **AMERICAN EXCELSIOR CO.** | OPERATOR

Jul 2014 - Sept 2014 | Yakima, WA

## KD&S ENVIRONMENTAL | CLASS ONE ASBESTOS ABATER

Jul 2013 - Sept 2013 | Yakima, WA

#### **ALLAN BROTHERS, INC.** | Scale Manager

Jun 2012 - Aug 2012 and Jun 2013 - Jul 2013 | Naches, WA

## PUBLICATIONS

- [1] J. A. Harris, S. Mihalas, K. E. Hirokawa, J. D. Whitesell, J. Knox, A. Bernard, P. Bohn, S. Caldejon, L. Casal, A. Cho, D. Feng, N. Gaudreault, N. Graddis, P. A. Groblewski, A. Henry, A. Ho, R. Howard, L. Kuan, J. Lecoq, J. Luviano, S. McConoghy, M. Mortrud, M. Naeemi, L. Ng, S. W. Oh, B. Ouellette, S. Sorensen, W. Wakeman, Q. Wang, A. Williford, J. Phillips, C. Koch, and H. Zeng. The organization of intracortical connections by layer and cell class in the mouse brain. *bioRxiv*, 2018.
- [2] J. E. Knox, K. D. Harris, N. Graddis, J. D. Whitesell, H. Zeng, J. A. Harris, E. Shea-Brown, and S. Mihalas. High resolution data-driven model of the mouse connectome. *bioRxiv*. 2018.