

# ANTON ALYAKIN

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## EDUCATION

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**Washington University in St. Louis**

*Medical Scientist Training Program*

Biomedical Informatics & Data Science

[Aug 2021, May 2029]

(Expected)

**Johns Hopkins University**

*Master of Science in Engineering*

Applied Mathematics & Statistics

[Jan 2019, Dec 2019]

**Johns Hopkins University**

*Bachelor of Science*

Computer Science

Applied Mathematics & Statistics

[Aug 2015, May 2019]

## DISSERTATIONS

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1. **A. Alyakin**, *Robust Hypothesis Testing of Location Parameters using Lq-Likelihood-Ratio-Type Test in Python*, a thesis submitted to The Johns Hopkins University in conformity with the requirements for the degree of Master of Science in Engineering, 2019. [arXiv] [library] [code]
2. **A. Alyakin**, *Motif Discovery in the Irregularly Sampled Time Series Data*, a thesis submitted to The Johns Hopkins University in conformity with the requirements for Senior Honors Thesis in Computer Science, 2019.

## PUBLICATIONS

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1. F. Rahman, N. Finkelstein, **A. Alyakin**, N. A. Gilotra, J. Trost, S. P. Schulman, S. Saria, *Using Machine Learning for Early Prediction of Cardiogenic Shock in Patients with Acute Heart Failure*, Journal of the Society for Cardiovascular Angiography & Interventions, 2022. [arXiv] [journal]
2. J. Chung<sup>†</sup>, B. Varjavand<sup>†</sup>, J. Arroyo, **A. Alyakin**, J. Agterberg, M. Tang, J. T. Vogelstein, C. E. Priebe, *Valid Two-Sample Graph Testing via Optimal Transport Procrustes and Multiscale Graph Correlation with Applications in Connectomics*, Stat, 2021. [arXiv] [journal] [code]
3. K. Marchisio, Y. Park, A. Saad-Eldin, **A. Alyakin**, K. Duh, C. Priebe, P. Koehn, *An Analysis of Euclidean vs. Graph-Based Framing for Bilingual Lexicon Induction from Word Embedding Spaces*, Findings of the Association for Computational Linguistics: EMNLP 2021. [arXiv] [journal] [code]

## PREPRINTS

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1. M. Powell, C. Clark, **A. Alyakin**, J. T. Vogelstein, B. Hart, *Metformin: We Need to Either Put It in Our Drinking Water or Rethink How We Study It*, submitted, 2021. [arXiv]
2. **A. Alyakin**, J. Agterberg, H. Helm, and C. E. Priebe, *Correcting a Nonparametric Two-sample Graph Hypothesis Test for Graphs with Different Numbers of Vertices*, submitted, 2020. [arXiv]

## SOFTWARE

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### **microsoft/graspologic** (previously **neurodata/graspy**)

Contributor to and maintainer of **graspologic**, an open-source Python package that provides utilities and algorithms for doing statistical analyses on graph- and network-valued data. Notable contributions include latent distribution test implementation and the align module.

### **alyakin314/lqrt**

Author and maintainer of **lqrt**, a Python package that implements the Robust Hypothesis Testing of Location Parameters using Lq-Likelihood-Ratio-Type Test.

### **Data-Driven Discovery of Models Library - JHU Graph Primitives**

One of the primary maintainers of the repository that is JHU's contribution to the D3M's library of selectable primitives that are used as basic building blocks in the automated model discovery process. JHU's primitives are aimed at tackling machine learning problems with graph, or network inputs, such as Vertex Classification, Community Detection, Link Prediction and Seeded Graph Matching.

## RESEARCH

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### **Johns Hopkins University**

*Assistant Research Engineer*

Department of Applied Mathematics & Statistics

Faculty Supervisors: Carey E. Priebe & Joshua T. Vogelstein

*[Jan 2020, Mar 2021]*

### **Johns Hopkins University**

*Graduate Research Assistant*

Department of Applied Mathematics & Statistics

Faculty Supervisor: Carey E. Priebe

*[Jun 2019, Dec 2019]*

### **Johns Hopkins University**

*Undergraduate Research Assistant*

Department of Computer Science

Faculty Supervisor: Suchi Saria

*[May 2017, May 2019]*

## TEACHING

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### **Johns Hopkins University**

*Teaching Assistant*

580.475 Biomedical Data Science

553.430/630 Introduction to Statistics

553.436/636 Data Mining

*Fall 2019*

*Spring 2019*

*Fall 2018*

## AWARDS

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### **Johns Hopkins University**

Applied Mathematics & Statistics Prize for Outstanding Master's Research

Applied Mathematics & Statistics Achievement Award

Undergraduate General Honors

Undergraduate Departmental Honors with Thesis, Computer Science

Undergraduate Departmental Honors, Applied Mathematics & Statistics

*2020*

*2019*

*2019*

*2019*

*2019*

## SKILLS

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### **Languages** (in order of proficiency):

Python (including PyTorch and TensorFlow), English, Russian, R, Matlab, Java, C++.

### **Other skills:**

L<sup>A</sup>T<sub>E</sub>X, Git, Databases (PostgreSQL, BigQuery), Bouldering (6C/V5), Lead climbing (6B/5.10).