

# ANTON ALYAKIN

alyakin314@gmail.com ◇ alyakin314.github.io

## EDUCATION

---

### Washington University in St. Louis

*Doctor of Medicine*

One-Year Research without Degree Program (MD5)

[Aug 2021, May 2026]

(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]

## RESEARCH

---

### New York University

*Visiting Medical Student Researcher*

Department of Neurosurgery / OLAB / Leuthardt Lab

Faculty Supervisors: Eric K. Oermann & Eric Leuthardt

[Mar 2024, Mar 2025]

### Johns Hopkins University

*Assistant Research Engineer*

Department of Applied Mathematics & Statistics / Neruodata Lab

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

---

### 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

## PUBLICATIONS

---

1. J. Lee, M. Ruiz-Cardozo, R. Patel, S. Javeed, R. Lavandi, C. Newsom-Stewart, **A. Alyakin**, C. Molina, N. Agarwal, W. Ray, M. Santacatterina, B. Pennicooke, *Clinical Prediction for Surgical versus Nonsurgical Interventions in Patients with Vertebral Osteomyelitis and Discitis*, Journal of Spine Surgery, accepted, 2024.
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 with Applications to Connectomics*, Applied Network Science, 2024. [arXiv] [journal] [code]
3. M. Powell, C. Clark, **A. Alyakin**, J. T. Vogelstein, B. Hart, *Exploration of Residual Confounding in Analyses of Associations of Metformin Use and Outcomes in Adults With Type 2 Diabetes*, JAMA Network Open, 2022. [arXiv] [journal]
4. 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]
5. 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]
6. 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]

## DISSERTATIONS

---

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. [pdf]

## PREPRINTS

---

1. **A. Alyakin**, Y. Qin, and C. E. Priebe, *LqRT: Robust Hypothesis Testing of Location Parameters using Lq-Likelihood-Ratio-Type Test in Python*, submitted, 2019. [arXiv] [code]

## SOFTWARE

---

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

Contributor to and one of the maintainers 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 sole 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.

## AWARDS

---

### Johns Hopkins University

Applied Mathematics & Statistics Prize for Outstanding Master's Research	<i>2020</i>
Applied Mathematics & Statistics Achievement Award	<i>2019</i>
Undergraduate General Honors	<i>2019</i>
Undergraduate Departmental Honors with Thesis, Computer Science	<i>2019</i>
Undergraduate Departmental Honors, Applied Mathematics & Statistics	<i>2019</i>
Whitening School of Engineering Dean's List (8/8 Semesters)	<i>2015-2019</i>

## SKILLS

---

### 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 (7a/V6 indoor; V2 outdoor), Lead climbing (6b/5.10).