ANTON ALYAKIN

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319A Clark Hall, 3400 North Charles Street, Baltimore, MD, 21218

EDUCATION

Washington University in St. Louis
Medical Scientist Training Program (M.D.-Ph.D.) — *Expected [May 2028, ∞)*
Biomedical Informatics and Data Science

Johns Hopkins University
Master of Science in Engineering (M.S.E.) — *December 2019*
Applied Mathematics and Statistics

Johns Hopkins University
Bachelor of Science (B.S.E.) — *May 2019*
Computer Science; Applied Mathematics and Statistics

RESEARCH

Johns Hopkins University
Assistant Research Engineer — *January 2020 - March 2021*
Department of Applied Mathematics and Statistics
Faculty Supervisors: Carey E. Priebe & Joshua T. Vogelstein
Graduate Research Assistant — *June 2019 - December 2019*
Department of Applied Mathematics and Statistics
Faculty Supervisor: Carey E. Priebe
Undergraduate Research Assistant — *May 2017 - May 2019*
Department of Computer Science
Faculty Supervisor: Suchi Saria

TEACHING

Johns Hopkins University
Teaching Assistant for 580.475 Biomedical Data Science — *Fall 2019*
Teaching Assistant for 553.430/630 Introduction to Statistics — *Spring 2019*
Teaching Assistant for 553.436/636 Data Mining — *Fall 2018*

AWARDS

Johns Hopkins University
Applied Mathematics and Statistics Prize for Outstanding Master's Research — *2020*
Applied Mathematics and Statistics Achievement Award — *2019*
Undergraduate General Honors — *2019*
Undergraduate Departmental Honors with Thesis, Computer Science — *2019*
Undergraduate Departmental Honors, Applied Mathematics and Statistics — *2019*

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. [library] [arXiv] [code]

2. **A. Alyakin**, *Motif Discovery in the Irregulary 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.

PREPRINTS

1. M. Powell, C. Clark, **A. Alyakin**, J. T. Vogelstein, B. Hart, *Diagnosing Residual Confounding in Observational Studies Using Negative Control Experiments and Complementary Cohorts*, in progress, 2021.

2. 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*, in progress, 2021.

3. J. Chung†, B. Varjavand†, J. Arroyo, **A. Alyakin**, J. Agterberg, M. Tang, J. T. Vogelstein, C. E. Priebe, *Improving Power of 2-Sample Random Graph Tests with Applications in Connectomics*, submitted, 2021 [arXiv]

4. **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] [code]

5. F. Rahman, N. Finkelstein, **A. Alyakin**, N. A Gilotra, J. Trost, S. P. Schulman, and S. Saria, *Using Machine Learning Tools for Early Prediction of Cardiogenic Shock in Patients with Acute Decompensated Heart Failure*, submitted, 2020. [arXiv]

SOFTWARE

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 mainterners 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 netowrk, inputs, such as Vertex Classification, Community Detection, Link Prediction and Seeded Graph Matching.

SKILLS

Programming Languages (in order of proficiency):

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

Languages:

- English, Russian.

Other skills:

- LaTeX, Git, Databases (PostgreSQL, BigQuery).