EricBridgeford

Computational Neuroscientist

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languages

English, basic French

programming

Python, R, UNIX
Java, Matlab, SQL
C++, C
Javascript, CSS & HTML

tools

Rmarkdown, FSL, Git
jupyter, Docker, EC2,
S3, AWS Batch,
Android

education

2013 – 2017 **B.S.** in Biomedical Engineering and Computer Science
minor Mathematics — Johns Hopkins University, Baltimore, MD
Thesis work supervised by Dr. Joshua T. Vogelstein on project entitled: Functional Neurodata Graphs Service: a One-Click Pipeline for the Reliable Estimation of Functional Connectomes.

2009 – 2013 **High School** La Salle College High School — Wyndmoor, PA

experience

Academic Experience

Positions

08/14 – 05/17 **Center for Imaging Science, Johns Hopkins University** — Baltimore, MD
Undergraduate Researcher under Joshua T. Vogelstein
Design and implementation of an open-source fMRI pipeline for robust one-click analysis. Development of extensive quality multi-modal MR quality control suite. Statistical work focusing on making inferences from fMRI connectomes.

05/14 – 02/16 **Complex Systems Group, University of Pennsylvania** — Philadelphia, PA
Undergraduate Researcher under Danielle S. Bassett
Assisted in the development of novel network theory statistics to compare network performance. Publicly available code for assessing small world propensity in weighted, real world networks, a statistic that improves the robustness and scaling of measures of small worldness.

Teaching

08/17 – now **Biomedical Engineering Department, Johns Hopkins University** — Baltimore, MD
Teaching Assistant for 580.437/697 Neuro Data Design 1 under Dr. Joshua Vogelstein.

01/17 – 05/17 **Computer Science Department, Johns Hopkins University** — Baltimore, MD
Course Assistant for 600.475 Introduction to Machine Learning under Dr. Raman Arora.

Reports

1. Functional Neurodata Graph Service: a One-Click Pipeline for Functional Connectome Estimation (FNGS)

   Eric W Bridgeford, et al.

   Computer Science Honors Thesis (2017).

Organizations and Volunteer Work

03/08 – now **Special Olympics Male Gymnastics Coach, Hatboro YMCA** Hatboro, PA
Volunteer work mentoring & coaching special needs gymnasts. Head male gymnastics coach from 03/11 – 05/14.

04/14 – now **Sigma Chi Fraternity, $K\Upsilon$ Chapter** Baltimore, MD
Chapter Risk manager from 09/14 – 05/15.

awards

05/17 **Computer Science Departmental Honors with Thesis** Johns Hopkins University, Baltimore, MD
awarded for maintaining a cumulative GPA of 3.5 or higher within courses specific to the department and acceptance of senior research thesis.

05/17 **Biomedical Engineering Departmental Honors** Johns Hopkins University, Baltimore, MD
awarded for maintaining a cumulative GPA of 3.5 or higher within courses specific to the department.

05/17 **General Honors** Johns Hopkins University, Baltimore, MD
awarded for maintaining cumulative GPA of 3.5 or higher.

09/14 – 05/17 **Martha A. Laverty Scholar** Johns Hopkins University, Baltimore, MD
Grant awarded for merit achievement.

05/15 – 05/17 **Dean's List** Johns Hopkins University, Baltimore, MD
Awarded for maintaining a GPA above a 3.5/4.0.

09/15 **Everyblock API Award** University of Pennsylvania Pennapps, Philadelphia, PA
Awarded for the best application making use of the Everyblock API for app StrollSafe.

05/13 **National Merit Finalist** La Salle College High School, Wyndmoor, PA
Awarded to the top 15,000 high school students on basis of PSAT scores and academic achievement

interests

professional: machine learning, graph classification, pipeling engineering, cloud computing, data analysis, neuroscience, reproducibility, timeseries analysis.
personal: guitar, cooking, hiking, biking, scale model warships, rock climbing.

publications

articles in peer-reviewed journals

1. Small-World Propensity in Weighted, Real-World NetWorks

   Sarah F. Muldoon, Eric W. Bridgeford, Danielle S Bassett

   Scientific Reports (Feb. 2016).

conference posters

1. MR Graph with Rich attribUTEs DataBase (Mr. GruteDB)

   Gregory Kiar, William R Gray Roncal, Disa Mhembere, Eric Bridgeford, Shan gsi Wang, Carey Priebe, Randal Burns, Joshua T Vogelstein

Organization for Human Brain Mapping (OHBM) (June 2016).

2. MRImages to Graphs: A One Click Community Pipeline for MR Connectome Analysis

   Eric Bridgeford, Gregory Kiar, Will Gray Roncal, Disa Mehembre, Randal Burns, Joshua T Vogelstein

   Institute for Computational Medicine Poster Session (2015).

3. Community Connectomics via Cloud Computing Utilizing m2g - a Reference Pipeline

   Gregory Kiar, et al.

   Organization for Human Brain Mapping (OHBM) (2015).

4. Quantifying Small Worldness in Weighted Brain Networks: Small-World Propensity

   Sarah Muldoon, Eric W Bridgeford, Danielle Bassett

   Society for Neuroscience (SfN) (Oct. 2015).

5. The Open Connectome Project & NeuroData: Enabling Data Driven Neuroscience at Scale

   Joshua T. Vogelstein, et al.

   Society for Neuroscience (SfN) (Oct. 2015).

works in progress

1. Weighted Signal Subgraphs and Applications in MRI Connectomics

   Kara Blacker, et al.

   Work in Progress (2017).

2. The NDMG Functional Pipeline: a One-Click Cloud Pipeline for the robust acquisition of functional MRI connectomes

   Eric W Bridgeford, et al.

   in preparation (2017).

3. NDMG: A Scalable, Reliable, and Replicable Pipeline for Diffusion-MRI Cloudified Connectome Meganalysis

   Gregory Kiar, et al.

   In Preparation (2017).

4. NeuroData: Enabling Neuroscience for Everyone

   Joshua T. Vogelstein, et al.

   In Preparation (2017).

5. Optimal Decisions for Discovery Science via Maximizing Discriminability: Applications in Neuroimaging

   Shangsi Wang, Zhi Yang, Xi-Nian Zuo, Michael Milham, Cameron Craddock, Gregory Kiar, William Gray Roncal, Eric Bridgeford, Carey E Priebe, Joshua T Vogelstein

   In Preparation (2017).

talks

1. "From the Functional Brain to the Connectome: An Introduction to Neuroscience Research in the 21st Century". 2016.