



# gregorykiar





biomedical engineer



## contact

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## languages

english native speaker  
basic ASL

## programming

Python, R, MATLAB   
C++, x86 assembly  
LaTeX, CSS & HTML

## soft skills

leadership, design,  
problem solving

## education

- 2014–2016 **M.S.E** in Biomedical Engineering Johns Hopkins University, Baltimore, MD  
Thesis work was supervised by Joshua T. Vogelstein on a project entitled: GREMLIN: Graph Estimation from MR images Leading to Inference in Neuroscience.
- 2010–2014 **B.Eng** in Biomedical and Electrical Engineering Carleton University, Ottawa, ON  
Capstone work was supervised by Leonard MacEachern on a project entitled: Electrical muscle stimulation with concurrent EMG feedback of the upper arm for applications in stroke rehabilitation.
- 2016 **Exploring the Human Connectome** The Human Connectome Project, Boston, MA  
Development and deployment of connectome estimation pipelines.
- 2015 **Presenting Data and Information** Edward Tufte, Baltimore, MD  
Cultivate skills in effective communication with scientific figures.

## experience

### Academic Experience

#### Current Positions

- 09/14 – now **Center for Imaging Science, Johns Hopkins University** Baltimore, MD  
*Research Engineer*  
Development and maintenance of an open-source pipeline for multi-scale brain-graph generation from human MR images. Implementation and development statistical algorithms for quality control of data derivatives. Publicly released data products to lower the barrier to entry for neuroscience research.
- 09/14 – now **Dept. of Biomedical Engineering, Johns Hopkins University** Baltimore, MD  
*Teaching Assistant*  
Responsible for instruction, evaluation, and content design for: Freshman Modeling and Design for BME (2014, 2015), Systems and Controls (2015), Statistical Connectomics (2015), The Art of Data Science (2016), NeuroData Design (2016). Has spent more than 500 hours (cumulative) working with students.

#### Current Activities

- 10/16 – now **NeuroStorm, Kavli Neuroscience Discovery Institute** Baltimore, MD  
*Field Engineer*  
Interface with brain scientists from around the world to facilitate them using the resources available to them. Identify bottlenecks in utility for neuroscience initiatives and propose solutions and best approaches for resolving data quality issues. Develop accessible tutorials, organize and run hackathons, workshops, and related events for outreach and educational purposes.
- 09/14 – now **NeuroData** Baltimore, MD  
*Chief Neurocartographer and Core Team Member*  
Performer on core research objectives. Chiefly responsible for content curation and presentation of grant deliverables to funding agency. Manager and organizer of public presence and conferences.

## Previous Positions

- 01/15, 01/16 **Dept. of Computer Science, Johns Hopkins University** Baltimore, MD  
*Instructor*  
Responsible for instruction, evaluation, and content design for intensive 3-week project-based course on an introduction to connectomics research across multiple scales and experimental modalities.
- 09/12 – 05/14 **Student Academic Success Center, Carleton University** Ottawa, ON  
*Facilitator for Peer-Assisted Study Sessions*  
Instructed and demonstrated mastery of principles in electromagnetism and power engineering.
- 08/13 – 05/14 **Student Academic Success Center, Carleton University** Ottawa, ON  
*Facilitator Team Leader*  
Provided training, mentoring, and coaching to student instructors in a variety of disciplines.
- 01/13 – 06/14 **Dept. of Systems and Computer Engineering, Carleton University** Ottawa, ON  
*Teaching Assistant*  
Instructed introductory level C++ programming. Led lab sessions and instructional workshops.

## Work Experience

- 06/13 – 09/13 **Dept. of Systems and Computer Engineering, Carleton University** Ottawa, ON  
*Research Assistant with Dr. Rafik Goubran*  
Developed wireless medical data publish-subscribe system for viewing patient vital signs remotely.
- 06/12 – 09/12 **Dept. of Systems and Computer Engineering, Carleton University** Ottawa, ON  
*Research Assistant with Dr. Andy Adler*  
Utilized neural networks for inverse modeling of real and simulated biological systems.
- 06/11 – 09/11 **Dept. of Biology, Carleton University** Ottawa, ON  
*Research Assistant with Dr. Jeffrey Dawson*  
Developed robotics platform for studying insect locomotion patterns and behaviour.
- 01/09 – 09/09 **CRC, Ottawa Hospital Research Institute** Ottawa, ON  
*Research Assistant with Dr. Jim Dimitroulakos*  
Tested combination therapies of Lovastatin and Cisplatin drugs on colon and breast cancer strains.

## Volunteer Experience

- 06/15 – 09/16 **College Prep Program** Baltimore, MD  
College Mentor, SAT Coach, & Essay Reviewer
- 09/14 – 06/16 **Thread** Baltimore, MD  
Grandparent & Volunteer
- 06/13 – 05/14 **Carleton University Biomedical Engineering Society** Ottawa, ON  
President
- 09/13 – 06/14 **PASS Talks** Ottawa, ON  
Co-Founder and Vice President
- 12/12, 12/13 **Operation Red Nose Ottawa** Ottawa, ON  
Navigator and Driver
- 09/10 – 09/11 **Carleton University Student Emergency Response Team** Ottawa, ON  
Emergency First Responder

## awards

2014	<b>Greatest Social Impact Paper</b>	Professional Engineering Ontario (PEO), Ottawa, ON
	Awarded to the capstone project with the potential to produce the largest positive societal impact.	
2014	<b>SEED Fund</b>	Carleton University Engineering Alumni, Ottawa, ON
	Awarded to the capstone project deemed most likely to become a successful startup.	
2014	<b>IEEE Papers Showcase Local Winner</b>	IEEE Ottawa-Carleton Chapter, Ottawa, ON
	Awarded to the capstone project best demonstrating mastery of core electrical engineering principles.	
2014	<b>Carleton Electronics Project Competition Champion</b>	Carleton University, Ottawa, ON
	Awarded to the capstone project best demonstrating mastery of core electrical engineering principles.	
2013	<b>Engineering '65 and '66 Scholarship</b>	Carleton University, Ottawa, ON
	Awarded to students maintaining a GPA above a 10/12 (the equivalent of an A).	
2012–2014	<b>Dean's Honour List</b>	Carleton University, Ottawa, ON
	Awarded to students maintaining a GPA above a 10/12 (the equivalent of an A).	
2012	<b>Clarence C. Gibson Scholarship</b>	Carleton University, Ottawa, ON
	Awarded to students maintaining a GPA above a 10/12 (the equivalent of an A).	

## interests

**professional:** pipelining engineering, cloud computing, big data, data analysis, software design, neuroscience, accessibility and reproducibility. **personal:** guitar, hockey, soccer, cooking, design, animals, hiking, paddling.

## publications

### under review pre-prints

#### 1. Science In the Cloud (SIC): A use case in MRI Connectomics

Gregory Kiar, Krzysztof J. Gorgolewski, Dean Kleissas, William Gray Roncal, Brian Litt, Brian Wandell, Russel A. Poldrack, Martin Wiener, R. Jacob Vogelstein, Randal Burns, Joshua T. Vogelstein

*GigaScience* (Oct. 2016).

#### 2. BIDS Apps: Improving ease of use, accessibility and reproducibility of neuroimaging data analysis methods

Krzysztof J. Gorgolewski, Fidel Alfaro-Almagro, Tibor Auer, Pierre Bellec, Mihai Capota, M. Mallar Chakravarty, Nathan W. Churchill, R. Cameron Craddock, Gabriel A. Devenyi, Anders Eklund, Oscar Esteban, Guillaume Flandin, Satrajit S. Ghosh, J. Swaroop Guntupalli, Mark Jenkinson, Anisha Keshavan, Gregory Kiar, Pradeep Reddy Raamana, David Raffelt, Christopher J. Steele, Pierre-Olivier Quirion, Robert E. Smith, Stephen C. Strother, Gael Varoquaux, Tal Yarkoni, Yida Wang, Russell A. Poldrack

*PLoS CB* (Sept. 2016).

#### 3. Grand Challenges for Global Brain Sciences

Joshua T Vogelstein, Katrin Amunts, Andreas Andreou, Dora Angelaki, Giorgio Ascoli, Cori Bargmann, Randal Burns, Corrado Cali, Frances Chance, Miyoung Chun, Gregory Kiar

*F1000 Research* (Aug. 2016).

## articles in peer-reviewed journals

### 1. To the Cloud! A Grassroots Proposal to Accelerate Brain Science Discovery

Joshua T. Vogelstein, Brett Mensh, Michael Häusser, Nelson Spruston, Alan C. Evans, Konrad Kording, Katrin Amunts, Christoph Ebell, Jeff Muller, Martin Telefont, Sean Hill, Sandhya P. Koushika, Corrado Cali, Pedro Antonio Valdés-Sosa, Peter B. Littlewood, Christof Koch, Stephan Saalfeld, Adam Kepecs, Hanchuan Peng, Yaroslav O. Halchenko, Gregory Kiar, Mu-Ming Poo, Jean-Baptiste Poline, Michael P. Milham, Alyssa Picchini Schaffer, Rafi Gidron, Hideyuki Okano, Vince D. Calhoun, Miyoung Chun, Dean M. Kleissas, R. Jacob Vogelstein, Eric Perlman, Randal Burns, Richard Huganir, Michael I. Miller

*Neuron* 92.3 (Nov. 2016) pp. 622–627. Elsevier, requested article.

## proceedings in international peer-reviewed conferences

### 1. Electric localization of weakly electric fish using neural networks

Gregory Kiar, Yasin Mamatjan, James Jun, Len Maler, Andy Adler

*Journal of Physics: Conference Series* vol. 434 (May 2013).

## posters at international conferences

### 1. MR Graph with Rich attribUTES DataBase (Mr. GruteDB)

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

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

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

Joshua T. Vogelstein, et al.

*Society for Neuroscience* (Oct. 2015).

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

Gregory Kiar, William R Gray Roncal, Disa Mhembere, Eric Bridgeford, Daniel Clark, Michael Milham, Cameron Craddock, Randal Burns, Joshua Vogelstein

*Organization for Human Brain Mapping* (June 2015).

## other publications

### 1. ndmg: NeuroData's MRI Graphs pipeline

Gregory Kiar, William Gray Roncal, Disa Mhembere, Eric Bridgeford, Randal Burns, Joshua Vogelstein

(Aug. 2016).

### 2. GREMLIN: Graph Estimation from MR Images Leading to Inference in Neuroscience

Gregory Kiar

*Master's Thesis, Johns Hopkins University* (Apr. 2016).

## works in progress

### 1. Testing the promise of graph-based analyses of white-matter connectivity

William R Gray Roncal, Jordan Matelsky, GM Hwang, Greg Kiar, C Bradfield, Michael Wolmetz

*In Preparation* (2016).

2. NeuroData: Enabling Neuroscience for Everyone

Joshua T. Vogelstein, et al.

*In Preparation* (2016).

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

Shangsi Wang, Zhi Yang, Xi-Nian Zuo, Michael Milham, Cameron Craddock, Greg Kiar, William R. Gray Roncal, Eric Bridgeford, CORR, Carey E. Preibe, Joshua T. Vogelstein

*In Preparation* (2016).

4. m2g: A reference pipeline for reliable connectome estimation

Gregory Kiar\*, William R Gray Roncal\*, et al.

*In Preparation* (2016).