I. Contributions to research and development

a. Articles published or accepted in peer-reviewed journals

1. Gorgolewski, K.J., …, **Kiar, G.**, et al. (2017) BIDS apps: Improving ease of use, accessibility, and reproducibility of neuroimaging data analysis methods. PLoS Computational Biology. 13(3): e1005209 (Master's work).

2. **Kiar, G.**, Gorgolewski, K.J., Kleissas, D., Gray Roncal, W.R., Litt, B., Wandell, B., Poldrack, R.A., Wiener, M., Vogelstein, R.J., Burns, and R., Vogelstein, J.T. (2017) Science in the Cloud (SIC): A use case in MRI Connectomics. Giga Science. 6(5): 1-0 (Master's work).

3. **Neuro Cloud Consortium**[1]. (2016) To the cloud! A grassroots proposal to accelerate brain science discovery. Neuron. 92(3): 622-7 (Master's work; [1]I belong to this consortium).

4. Vogelstein, J.T., …, **Kiar, G.** et al. (2016) Grand Challenges for Global Brain Sciences. F1000 Research. 5. doi:10.12688/f1000research.10025.1 (Master's work).

c. Other peer-reviewed contributions

1. Gorgolewski, K.J.*, …, **Kiar, G.**, et al. (2017) BIDS apps: Improving ease of use, accessibility, and reproducibility of neuroimaging data analysis methods. Organization for Human Brain Mapping (Master's work; poster; international conference).

2. **Kiar, G.***, Gray Roncal, W.R., Mhembere, D., Bridgeford, E., Wang, S., Priebe, C.E., Burns, R., and Vogelstein, J.T. (2016) MR Graph with Rich attribUTEs DataBase (Mr. GruteDB) Organization for Human Brain Mapping (Master's work; poster; international conference).

3. **Kiar, G.***, Gray Roncal, W.R., Mhembere, D., Bridgeford, E., Clark, D., Milham, M., Craddock, R.C., Burns, R., and Vogelstein, J.T. (2015) Community Connectomics via Cloud Computing Utilizing m2g: a Reference Pipeline. Organization for Human Brain Mapping (Master's work; poster; international conference).

4. Vogelstein, J.T.*, Gray Roncal, W.R., Lillaney, K., Baden, A., **Kiar, G.**, Mhembere, D., Zheng, D., Perlman, E., and Burns, R. (2015) The Open Connectome Project & NeuroData: Enabling Data Driven Neuroscience at Scale. Society for Neuroscience (Master's work; poster; international conference).

d. Non-peer-reviewed contributions

1. **Kiar, G.**, Bridgeford, E., Chandrashekhar, V., Mhembere, D., Burns, R., Gray Roncal, W.R., and Vogelstein, J.T. (2017) A Comprehensive Cloud Framework for Accurate and Reliable Human Connectome Estimation and Meganalysis. biorxiv 188706 (Master's work; pre-print publication).

2. Glatard, T., **Kiar, G.**, et al. (2017) Boutiques: a flexible framework for automated application integration in computing platforms. GitHub (PhD work; pre-print publication).

3. Dyer, E.*, **Kiar, G.**, Gray Roncal, W.R., Evans, E., Kording, K. and Vogelstein, J.T. (2017) BigNeuro 2017: Analyzing brain data from nano to macroscale. Neural Information Processing Systems (NIPS) (PhD work; workshop; international conference).

4. **Kiar, G.*** (2017) BrainHacking 101: An introduction to hacking the brain. Organization for Human Brain Mapping (PhD work; invited presentation; international conference)

5. **Kiar, G.*** and Keshavan, A. (2017) ClowdControl: Integrating Quality Control and Pipeline Deployment in the Cloud. Organization for Human Brain Mapping (PhD work; invited presentation; international conference).

    e. Technology transfer.
1. **Kiar, G.** (2017) NDMG. https://github.com/neurodata/ndmg (Master's work; open-source code).
2. **Kiar, G.** (2017) SIC. https://github.com/neurodata/sic (Master's work, open-source code).
3. Glatard, T., **Kiar, G.**, et al. (2017) Boutiques. https://github.com/boutiques/boutiques (PhD work; open-source code).
4. **Kiar, G.** (2014-2017) Many open-source code contributions across a variety of projects. https://github.com/gkiar (Master's and PhD work; open-source code).

II. Most significant contributions to research and development

A Comprehensive Cloud Framework for Accurate and Reliable Human Connectome Estimation and Meganalysis

During my Master's degree, I was chiefly responsible for all work pertaining to the development of a one-click tool for structural connectome estimation from big data. While a pre-print is online today, we are in the process of submitting the manuscript I wrote to *Nature Methods*, as we believe my pipeline to be significantly novel and important in the fields of computational neuroscience and scalable computing. This tool and project propose a framework for developing and evaluating computational tools, regardless of discipline, to maximize their stability, robustness, and ultimately sustainability. I have collaborated with and received feedback from many prominent members in the discipline community across the world on this project.

Science in the Cloud (SIC): A use case in MRI Connectomics

Alongside the development of the above, I was chiefly responsible for all work related to the development of a framework and implementation of pipeline execution and launch in the computing cloud. We published this work in *Gigascience* due to a shared passion for reproducible and scalable analysis in scientific or industrial research, and the relatively high impact factor (7.46). This effort spawned from an international conference in which attendees were discussing the need for such a framework. Utilizing the framework proposed, computational sciences can efficiently scale to big data, and seamlessly communicate and distribute results to the community.

III. Applicant's statement

Research experience

As is summarized in the above publication record, I have significant experience both being an active participant and leader on a variety of research projects across a wide range of computational areas.

Relevant activities

Since beginning my academic career I have been President of two academic societies (2013, 2017), held office in an international open-science organization (2017), chaired or organized several conferences or meetings (2016, 2017), developed and taught 8 courses (2015-2017), produced content for an online course in computational neuroscience (2017), managed a variety of software projects (2015-2017), been a mentor in several local- and international-organizations (2011-2017), mentored underprivileged youth in Baltimore (2014-2016), trained young instructors (2013, 2014), and won 7 awards for my research (2014, 2017). I believe the above summarizes my commitment, dedication, and affinity for science and engineering, leadership, and by far most importantly, helping others.