# BIOGRAPHICAL SKETCH

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NAME: Kiar, Gregory

eRA COMMONS USER NAME (credential, e.g., agency login): gregorykiar

POSITION TITLE: Research Scientist

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

| INSTITUTION AND LOCATION | DEGREE (if applicable) | END DATE MM/YYYY | FIELD OF STUDY |
|---|---|---|---|
| Carleton University, Biomedical and Electrical Engineering, Ottawa, ON | BENG | 06/2014 | Biomedical and Electrical Engineering |
| Johns Hopkins University, Biomedical Engineering, Baltimore, MD | MS | 05/2016 | Biomedical Engineering |
| McGill University, Biological & Biomedical Engineering, Montreal, Quebec | PHD | 04/2021 | Biological & Biomedical Engineering |

## A. Personal Statement

I am a Research Scientist at the Center for the Developing Brain, where I focus on increasing the robustness of neuroimaging-derived biomarkers. With a formal background in Biomedical Engineering, I have training and considerable experience in medical image processing, numerical analysis, high performance computing, machine learning, and software development. I have played a leading role in the design and development of various software projects centred around reproducibility. Alongside technical contributions, these projects relied heavily upon my ability to sustain international collaborations, effectively manage projects, and clearly communicate objectives and outcomes with stakeholders and community members. In tandem with tool development, I have lead several research projects focused on numerical uncertainty in neuroimaging. My pioneering work has presented techniques to both capture and leverage uncertainty in neuroscience analyses, ultimately leading to the generation of more robust and generalizable biomarkers. The adoption of open science practices and principles throughout my work not only allows me to maintain sharp communication and software development skills, but allows others to easily leverage and extend my work. In summary, I have demonstrated a high level of skill in application-driven software development, scientific exploration, project management, and leadership, all of which will enable me to successfully carry out the proposed projects.


1. Kiar,Gregory,, Chatelain,Yohan,, Castro Pablo de,Oliveira,, Petit,Eric,, Rokem,Ariel,, Varoquaux,Gaël,, Misic,Bratislav,, Evans,Alan C.,, Glatard,Tristan,. Numerical Uncertainty in Analytical Pipelines Lead to Impactful Variability in Brain Networks. [Preprint]. 2020 October 15. DOI: 10.1101/2020.10.15.341495
2. Kiar G, de Oliveira Castro P, Rioux P, Petit E, Brown ST, Evans AC, Glatard T. Comparing perturbation models for evaluating stability of neuroimaging pipelines. Int J High Perform Comput Appl. 2020 Sep;34(5):491-501. PubMed Central PMCID: PMC7418878.
3. Kiar Gregory, Chatelain Yohan, Salari Ali, Evans Alan C., Glatard Tristan. Data Augmentation Through Monte Carlo Arithmetic Leads to More Generalizable Classification in Connectomics. bioRxiv. 2020. Available from: https://www.biorxiv.org/content/early/2020/12/16/2020.12.16.423084 DOI: 10.1101/2020.12.16.423084
4. Kiar G, Brown ST, Glatard T, Evans AC. A Serverless Tool for Platform Agnostic Computational Experiment Management. Front Neuroinform. 2019;13:12. PubMed Central PMCID: PMC6411646.

## B. Positions, Scientific Appointments and Honors

### Positions and Scientific Appointments

| | |
|---|---|
| 2021 - | Research Scientist, Child Mind Institute, New York City, New York |
| 2020 - | Review Allocation Committee Member, Extreme Science and Engineering Discovery Environment (XSEDE) |
| 2020 - 2020 | Review Allocation Committee Member, COVID-19 High Performance Computing Consortium |
| 2017 - 2021 | Research Software Developer, McGill University, Montreal |
| 2017 - 2020 | Treasurer (Open Science Group), Organization for Human Brain Mapping |
| 2017 - 2020 | Member (Technical Steering Committee), Canadian Open Neuroscience Platform |
| 2016 - 2017 | Research Engineer (Center for Imaging Science), Johns Hopkins University |

### Honors

| | |
|---|---|
| 2020 | Research Scholar, Canadian Open Neuroscience Platform |
| 2019 | Young Investigator Award, Sage Bionetworks |
| 2019 | Globalink Research Award, Mitacs |
| 2018 | Alexander Graham Bell Canada Graduate Scholarship, Natural Sciences and Engineering Research Council of Canada |

## C. Contribution to Science

1. The first chapter of my academic career focused on the development of infrastructures enabling reproducible science. As neuroimaging became an increasingly computational demanding domain, there was an increasingly apparent need for standardization. Through consortia and collaborations, I have contributed to the creation and development of the BIDS Apps standard for prescriptive tool development and Boutiques, a descriptive command line framework. I have used these tools as the foundation for platforms and recommendations for performing reproducible computational experiments on cloud and high performance computing environments.

    a. Kiar G, Brown ST, Glatard T, Evans AC. A Serverless Tool for Platform Agnostic Computational Experiment Management. Front Neuroinform. 2019;13:12. PubMed Central PMCID: PMC6411646.

    b. Glatard T, Kiar G, Aumentado-Armstrong T, Beck N, Bellec P, Bernard R, Bonnet A, Brown ST, Camarasu-Pop S, Cervenansky F, Das S, Ferreira da Silva R, Flandin G, Girard P, Gorgolewski KJ, Guttmann CRG, Hayot-Sasson V, Quirion PO, Rioux P, Rousseau MÉ, Evans AC. Boutiques: a flexible framework to integrate command-line applications in computing platforms. Gigascience. 2018 May 1;7(5) PubMed Central PMCID: PMC6007562.

    c. Kiar G, Gorgolewski K, Kleissas D, Roncal W, Litt B, Wandell B, Poldrack R, Wiener M, Vogelstein R, Burns R, Vogelstein J. Science in the cloud (SIC): A use case in MRI connectomics. GigaScience. 2017 May; 6(5):-. Available from: https://academic.oup.com/gigascience/article/doi/10.1093/gigascience/gix013/3062833 DOI: 10.1093/gigascience/gix013

    d. Gorgolewski KJ, Alfaro-Almagro F, Auer T, Bellec P, Capotă M, Chakravarty MM, Churchill NW, Cohen AL, Craddock RC, Devenyi GA, Eklund A, Esteban O, Flandin G, Ghosh SS, Guntupalli JS, Jenkinson M, Keshavan A, Kiar G, Liem F, Raamana PR, Raffelt D, Steele CJ, Quirion PO, Smith RE, Strother SC, Varoquaux G, Wang Y, Yarkoni T, Poldrack RA. BIDS apps: Improving ease of use, accessibility, and reproducibility of neuroimaging data analysis methods. PLoS Comput Biol. 2017 Mar;13(3):e1005209. PubMed Central PMCID: PMC5363996.