

Kyle A. Johnsen

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EDUCATION

- 2019- **Georgia Institute of Technology/Emory University**
Atlanta, GA
PhD, Biomedical Engineering, specialization in neuroengineering
- 2015-19 **Brigham Young University**
Provo, UT
BS, Bioinformatics, computer science minor

RESEARCH/RELEVANT WORK EXPERIENCE

- 2019- **PhD Student**—Christopher Rozell, PhD, Georgia Tech. Developing closed-loop control strategies for neural systems using dynamics and machine learning approaches. Applying them to advance causal neuroscience research techniques.
- 2019 **Software Engineering Intern**—FamilySearch, LLC; Lehi, UT. Developed and maintained code for delivering personalized family history experiences to millions of patrons. Leveraged modern software engineering technology in an Agile team environment.
- 2016-19 **Undergraduate Research Assistant**—Jonathon Hill, PhD, BYU. Led team developing mutation mapping R package for release on open-source Bioconductor platform.
- 2018 **Software Development Intern**—Robert Burton, PhD, Center for Genomic Interpretation; Sandy, UT. Collaborated in full-stack development of prototype for clinical genetics data-mining web application with interdisciplinary team. Spearheaded design and implementation of database.
- 2018 **Undergraduate Research Assistant**—Mark Clement, PhD, BYU. Performed computational analyses to assess biological validity of experimental whole-genome phylogenetics software.
- 2017 **Undergraduate Research Assistant**—Jeffrey Coleman, PhD, Auburn University Computational Biology REU. Performed comparative genomics research on pathogenic fungus strains. Trained in a variety of bioinformatics tools and processes, including assembly, annotation, physical computing, and metagenomics.
- 2016 **Undergraduate Research Assistant**—James Schnable, PhD, University of Nebraska-Lincoln Bioenergy REU. Conducted pilot high-throughput digital phenotyping and quantitative maize genetics project; composed journal-style article.

2013 **Lab and Data Analysis Intern**—Jacqueline Siy-Ronquillo, Ph.D, Navillum Nanotechnologies; Salt Lake City, UT. Automated data analysis process, increasing speed by over 500%. Assisted in daily quantum dot synthesis experiments, handled samples and performed photoluminescence analyses.

HONORS AND AWARDS

2019- Computational Neural Engineering Scholar, NSF T32 Institutional Training Grant
2015-19 Heritage Scholarship, Brigham Young University, 4 years full tuition
2017 Auburn University Computational Biology REU Admission
2017 Dean's List, College of Life Sciences, Brigham Young University
2015-17 Utah Regents' Scholarship
 State-funded scholarship based on academic achievement
2016 University of Nebraska-Lincoln Bioenergy REU Admission
2015 National Merit Scholarship

POSTER/ORAL PRESENTATIONS

2018 **Exploring the Validity of *Kleuren* Output**
Student Research Conference, College of Physical and Mathematical Sciences, Brigham Young University. Oral presentation.
2017 **MMAPPR 2.0: Improved Genetic Mapping for Forward Genetic Screening**
Society of Developmental Biology, Southwest Chapter Regional Meeting, Houston, TX. Poster.
2017 **Comparative Genomics Analysis of a Sequence Type 33 Clinical Isolate of *Fusarium oxysporum***
Undergraduate Summer Research Scholars Symposium, Auburn University. Poster.
2016 **Maize Association Studies with High-throughput Image-based Phenotype Collection**
Nebraska Summer Research Symposium, University of Nebraska-Lincoln. Poster.

RESEARCH MENTORSHIP EXPERIENCE

MS students

Tobias Niebur

Undergraduate students

Autumn Griffin

Gabriel Cano

Adam Bayer

Brendan Hogge

TEACHING EXPERIENCE

- 2020-21 **Teaching Assistant, Biomedical Engineering 3110—Quantitative Engineering Physiology Laboratory I, Georgia Tech**
Helping students develop research skills such as literature review, hypothesis generation, experimental design, and analysis by mentoring group projects, giving feedback during the process and grading final submissions. Projects involve using self-constructed ECG and EMG circuits to answer original physiology research questions.
- 2019 **Teaching Assistant, Computer Science 240—Software Design & Testing, BYU**
Taught students software design principles at a conceptual level and helped them apply them in a full-stack Android app/web server game project.
- 2018 **Teaching Assistant, Computer Science 418—Bioinformatics, BYU**
Assisted students in algorithmic coding projects as well as integrated scientific publication-style bioinformatics assignments. Graded coursework.
- 2017 **Teaching Assistant, Computer Science 236—Discrete Structures, BYU**
Taught principles of discrete mathematics and assisted students in their implementation in coding projects. Graded assignments and exams.

ACADEMIC AND PROFESSIONAL SERVICE

- 2020- **Annual events committee**, Computational Neuroengineering Training Program. Help plan annual retreats, social events, and onboarding of new students.
- 2021 **Organizing committee**, GT/Emory Neural Engineering Center Motion Analysis Tutorial, March 20
- 2017 **Organizer**, Multicultural Celebration, Auburn University. Independently planned event held on Auburn University campus with 20-30 attendees
- 2016-17 **Executive Director**, “Service Dates” student service organization, Brigham Young University. Led team in designing and implementing community service projects for student volunteers

OPEN SOURCE PROJECTS

[MMAPPR2](#) Mutation Mapping Analysis Pipeline for Pooled RNA-seq.
Identifies and ranks candidate putative mutations resulting from forward genetic screens. Available as [R package on Bioconductor](#).

COMPUTATIONAL SKILLS

Languages	Intermediate-advanced R, Python, Java Intermediate C++ Basic MATLAB, Scala
Technologies	Cluster computing, AWS, Spark, SQL databases, Git
Practices	Collaborative Git-based branching development, continuous integration, automated testing and documentation, Agile development
Frameworks	Bioconductor, Spring Boot, Android, Flask

LANGUAGES

English	Native speaker
Spanish	Full professional proficiency
German	Professional working proficiency
Mandarin Chinese	Intermediate proficiency