

SHANNON E. ELLIS

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EDUCATION

- 2010–2016 **PhD** | Human Genetics
Johns Hopkins University School of Medicine • Baltimore, MD
Multi-omic Data Provide a More Complete Understanding of the Autistic Brain
- 2006–2010 **BS** | Biology & Spanish
King's College • Wilkes-Barre, PA
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TEACHING

- 2022–Present **Associate Teaching Professor**
2018–2022 **Assistant Teaching Professor**
University of California San Diego • La Jolla, CA
Instructor for COGS 9 Introduction to Data Science, COGS 108 Data Science in Practice, COGS 18 Introduction to Python, COGS 137 Practical Data Science in R, COGS 169 Genetic Information for Behavior, and DSC 180A & DSC 180B Data Science Capstone Sequence - Genetics.
- Spring 2018 **Co-Instructor** | Health Data Analysis Practicum
Johns Hopkins University • Baltimore, MD
- Fall 2017 **Teaching Assistant** | Public Health Biostatistics
Johns Hopkins University • Baltimore, MD
- Summer 2017 **Instructor** | Genetics
Johns Hopkins Center for Talented Youth • Baltimore, MD
- Spring 2013 **Teaching Assistant** | Advanced Topics in Human Genetics
Johns Hopkins School of Medicine • Baltimore, MD

Mentoring

- 2024[▣] Van Nguyen[†], Kacie Li, Natalie Huynh, Manuel Javian Vasconcelos, Mia Jerphagnon, Vivin Vinil
- 2023[▣] Natalie Huynh, Jieru Lin, Vicky Li, Van Nguyen
- 2022[▣] Alara Brashears[†]
- 2021[▣] Shubham Kulkarni, Arely Vasquez, Bob Zhang, Jitarth Sheth
- 2020[▣] Sashwath Gollamudi, Weilun Yao, Serene Issa, Clara Ortez, Sirui Tao, Owen Zhang, Simran Bhatia, Brendan Wong, Jianan Liang, Qizoxuan (Josh) Wang, Ritwik Sinha
- 2019[▣] Pratyush Khurana, Anran Li, Lauren Awaya, Ayushi Gupta, Zheng Tang, Jaidev Mirchandani., Qian Yin, Weilun Yao, Emily Le
- 2016[§] Augusto Ramirez. Elizabeth Vincent[‡]
- 2015–2016[§] Rebecca Panitch
- 2014[§] Heather Wick[‡], Edward Pang
- 2013[§] James Miller

[†] Honors Thesis Advisee; [‡] Graduate Student Advisee; [§] Johns Hopkins University; [▣] UC San Diego

Thesis Committees

2019–2022 Sean Kross | *PhD Student*, Cognitive Science, UC San Diego

2020 Rachel Goodridge | *MS Student*, Biology, UC San Diego

RESEARCH & PROJECTS

Peer-reviewed Publications

- 2023 Fitzgerald R. et al. (2023). Driving Under the Influence of Cannabis: Impact of Combining Toxicology Testing with Field Sobriety Tests. *Clinical Chemistry*.
- Leas E. et al. (2023). E-commerce licensing loopholes: a case study of online shopping for tobacco products following a statewide sales restriction on flavoured tobacco in California. *Tobacco Control*.
- 2022 Donoghue T., Voytek B., and Ellis S.E. (2022). Course Materials for Data Science in Practice. *The Journal of Open Source Education*.
- Lau S et al. (2022). The Challenges of Evolving Technical Courses at Scale: Four Case Studies of Updating Large Data Science Courses. *ACM Conference on Learning @ Scale (L@S)*.
- 2021 Hubbard et al. (2021). Biomarkers of Recent Cannabis Use in Blood, Oral Fluid and Breath. *Journal of Analytical Toxicology*.
- Hoffman M.A. et al. (2021). Blood and Oral Fluid Cannabinoid Profiles of Frequent and Occasional Cannabis Smokers. *Journal of Analytical Toxicology*.
- 2020 Donoghue T., Voytek B., and Ellis S.E. (2020). Teaching Creative and Practical Data Science at Scale. *Journal of Statistics and Data Science Education*.
- 2019 Madugundu A.K. et al. (2019). Integrated Transcriptomic and Proteomic Analysis of Primary Human Umbilical Vein Endothelial cells. *Proteomics*.
- 2018 Ellis S.E., Collado-Torres L., Jaffe A., Leek J.T. (2018). Improving the value of public RNA-seq expression data by phenotype prediction. *Nucleic Acids Research*.
- Ellis S.E. and Leek J.T. (2018). How to share data for collaboration. *The American Statistician*.
- 2017 Andrews S. et al. (2017). Cross-tissue integration of genetic and epigenetic data offers insight into autism spectrum disorder. *Nature Communications*.
- Ellis S.E., Gupta S., Moes A., West A.B., Arking D.E. (2017). Exaggerated CpH Methylation in the Autism-Affected Brain. *Molecular Autism*.
- Collado-Torres L. et al. (2017). Reproducible RNA-seq analysis using *recount2*. *Nature Biotechnology*.
- 2016 Ellis S.E., Panitch R., West A.B., Arking D.E. (2016). Transcriptome Analysis of Cortical Tissue Reveals Shared Sets of Down-Regulated Genes in Autism and Schizophrenia. *Translational Psychiatry*.
- 2015 Huang C. et al. (2015). Characterization of Genetic Loci That Affect Susceptibility to Inflammatory Bowel Diseases in African Americans. *Gastroenterology*.
- 2014 Gupta, S. et al. (2014). Transcriptome Analysis Reveals Deregulation of Innate Immune Response Genes and Neuronal Activity-Dependent Genes in Autism. *Nature Communications*.
- 2013 Ellis, S.E. et al. (2013). RNA-Seq optimization with eQTL gold standards. *BMC Genomics* 14, 892.

Books & Courses

- 2021 **Co-Author** | Tidyverse Skills for Data Science in R
Tidyverse Skills for Data Science in R (Wright, Ellis, Hicks & Peng, 2021, *Leanpub* and *Coursera*) helps readers develop insights from data with tidy tools. Through its chapters readers are introduced to the tidyverse before being taught how to import, wrangle, visualize, and model data in the tidyverse. This textbook includes case examples and case studies throughout to help teach and demonstrate how one can use the tidyverse suite of packages to carry out their data science tasks.
- 2017–2020 **Curriculum Lead** | Cloud-Based Data Science | clouddatascience.org • Baltimore, MD
Developed educational content for 13 free, online courses to teach the basics of data science to individuals with no prior computational experience. Supported development of technology built to support content development. Developed and implemented in-person tutoring and support program to help individuals who have earned their GED learn the basics of data science and obtain entry-level data science jobs.

Invited Talks & Workshops

- 2024 Teaching Creative and Practical Data Science at Scale (*IMSI: Teaching and Evaluating Data Communication At Scale*).
- 2023 Life Lessons That Have Nothing to Do with Data or Science. *DS3*.
- 2022 Structuring & Managing Group Projects in Large-Enrollment Undergraduate Data Science Course. *Toronto Reproducibility Workshop*.
- 2021 Capstone and Project-Based Data Science Courses at UC San Diego. *National Workshop on Data Science Education*.
- 2020 The {Art} of Effective Data Visualization. *Data Science Alliance*.
Improving the value of public data with *recount2* and phenotype prediction. *CSSA*.
RStudio Cloud in the Classroom. *ASA K-12 Virtual Workshop*.
- 2019 Overcoming the barriers of entry into data science for nontraditional learners with cloud computing. *Joint Statistical Meeting*.
Teaching Data Science: A Workshop for High School Teachers. *Symposium on Data Science and Statistics*.
Making a Case for Why Programming Will Save You Time. *Annual Congress in Clinical Mass Spectrometry*.
- 2018 Designing MOOCs to Democratize Data Science Education. *Design@Large*.
Improving the value of public data with *recount2* and phenotype prediction. *Joint Statistical Meeting*.
Improving the value of public data with *recount2* and phenotype prediction. *University of Washington Biostatistics Seminar*.
- 2017 Improving the value of public data with *recount2* and phenotype prediction. *Genomics and Bioinformatics Symposium*.
In silico phenotyping to improve the usefulness of public data. *Graybill Conference in Statistical Genomics and Genetics*.
In silico phenotyping to improve the usefulness of public data. *BIRS Statistical and Computational Challenges in Large Scale Molecular Biology*.
Increasing the value of public data with *in-silico* phenotyping. *Statistical and Algorithmic Challenges in Microbiome Data Analysis*.

PROFESSIONAL DEVELOPMENT & SERVICE

Pedagogy Training

Spring 2017 **Participant** | Johns Hopkins Teaching Institute

Completed an intensive workshop in pedagogy focused on enhancing instruction in higher education. Topics covered included: Teaching as Scholarship, Inclusive Classrooms, Active Learning, Planning a Course, Assessment, and Evaluation.

Scientific Meetings Attended

2024 Joint Statistical Meeting
2022 Toronto Reproducibility Workshop
2019 Symposium on Data Science and Statistics
2018–2019 Joint Statistical Meeting
2017 Graybill Conference in Statistical Genomics and Genetics
2017 rOpenSci Unconference
2017 BIRS Statistical & Computational Challenges in Large Scale Molecular Biology
2017 Statistical and Algorithmic Challenges in Microbiome Data Analysis
2010–2015 American Society for Human Genetics
2013–2014 Society for Neuroscience
2009–2010 American Society for Microbiology

Volunteering

2023 **Workshop Presenter** | Data Science Discovery Bootcamp
2020 **Essay Judge** | Stemanities
2019, 2020 **Career Panelist** | UCSD EPIC Postdoc Bootcamp
2015–Present **Volunteer** | Icing Smiles
2015–2020 **DNA Day Essay Judge** | The American Society of Human Genetics
2016–2018 **Volunteer** | Science Outside the Lines
2017 **Abstract Reviewer** | The American Society of Human Genetics

Service & Leadership

2024–Present **Undergraduate Council** | UC San Diego
2021–Present **Academic Integrity Review Board** | UC San Diego
2021–2023 **LPSOE Promotion Standards Committee** | Cognitive Science Department
2020–2023 **DEI Committee** | Halicioğlu Data Science Institute
2018–2019 **Undergraduate Curriculum Committee** | Cognitive Science Department
2019–2020 **LPSOE in Data Science Search Committee** | Halicioğlu Data Science Institute
2019–2020 **LPSOE in Machine Learning Search Committee** | Cognitive Science Department
2013–2016 **Graduate Student Representative** | Institute of Genetic Medicine
2013–2016 **Student Leader** | Barton Childs Lecture Planning Committee
2011–2015 **Committee Leader** | Graduate Program Student Recruitment
Spring 2014 **Student Leader** | McKusick Lecture Planning Committee

Journal Editor

Journal of Open Source Education | <https://jose.theoj.org/>

Journal Reviewer

European Journal of Human Genetics | www.nature.com/ejhg/
F1000 | <https://f1000.com/>
Harvard Data Science Review | <https://hdsr.mitpress.mit.edu/>
Journal of Statistics and DS Education | <https://www.tandfonline.com/toc/ujse21/>
Nature Biotechnology | www.nature.com/nbt/
Peer J | peerj.com/
PLoS Computational Biology | journals.plos.org/ploscompbiol/

Professional Societies

2018—current **Member** | American Statistical Association

2010—2017 **Member** | The American Society of Human Genetics

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HONORS AND AWARDS

2024 **Distinguished Teaching Award** | University of California San Diego

2017 **Teaching Award** | Johns Hopkins Center for Talented Youth

2008 **Undergraduate Research Fellowship** | National Science Foundation

2006—2010 **Presidential Scholarship** (a full academic scholarship) | King's College