

Sarah Spendlove

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Education

PhD in Bioinformatics

Bioinformatics Interdepartmental Program, University of California, Los Angeles, California

September 2017 – Present

- GPA: 3.835/4.0
- 90 completed units (42 graded, 48 satisfactory/unsatisfactory)
- Advanced to candidacy May 20, 2020 after successful completion of oral qualifying exam on May 18, 2020

BS in Bioinformatics, with a double major in Genetics & Biotechnology

Department of Biology and Department of Plant and Wildlife Sciences, Brigham Young University, Provo, Utah

Graduated Magna Cum Laude April 27, 2017

- GPA: 3.96/4.0
- Awarded 8 semesters and 2 terms of BYU Full-Tuition Academic Scholarship
- BYU College of Life Sciences Dean's List Fall 2012, Winter 2015, Winter 2016, Fall 2016

Grants and Fellowships

Genomic Analysis and Interpretation Training Program (GATP)

University of California, Los Angeles, California

July 1, 2020 - June 30, 2021

Publications

Caufield JH, Zhou Y, Garlid A, Setty S, Liem D, Cao Q, Lee J, Murali S, **Spendlove S**, Wang W, Zhang L, Sun Y, Bui A, Hermjakob H, Watson K, Ping P (2018) A reference set of curated biomedical data and metadata from clinical case reports. *Scientific Data*. **5**, article 180258.

Shi H, Mancuso N, **Spendlove S**, & Pasaniuc B (2017) Local genetic correlation gives insights into the shared genetic architecture of complex traits. *The American Journal of Human Genetics*. **101**(5), pp 737–751.

Poster Presentations

Burt C, Rupper R, & **Spendlove S** (2016) Tool to compare simple sequence repeats between parent and F2+ generations in *Avena*. [Poster] Presented at: Biotechnology and Bioinformatics Symposium, December 8, Provo, Utah.

Spendlove S, Shi H, & Pasaniuc B (2016) Local heritability analyses of 7 traits in up to 298,420 individuals. [Poster] Presented at Bruins in Genomics Summer Internship Poster Session, August 12, University of California, Los Angeles.
(Awarded Poster Award)

Research Experience

PhD Student (January 2018 – Present)

Dr. Jae Hoon Sul Lab, Department of Psychiatry and Biobehavioral Sciences, University of California, Los Angeles

- Research has included quality control, principle component analysis, identity-by-descent analysis, and phasing on an admixed family dataset of whole-genome sequence data from families with Alzheimer's disease and other neuropsychiatric disorders. Also interested in detecting possible positive selection of a rare deleterious mutation in this unique Colombian cohort.
- Research also includes investigations into the genetic basis of congenital heart disease through the use of polygenic risk scores
- Comfortable with a wide range of computational tools including Plink, R, KING (relationship inference software), PRSice, Shapeit4, the command line and more.
- Key words: Whole genome sequence analysis, disease genetics, neurodegenerative diseases, neuropsychiatric diseases, population genetics, admixed ancestry, bioinformatics, congenital heart disease, polygenic risk scores, phasing

PhD Rotation Student (September 2017 – December 2017)

Dr. Dan Geschwind Lab, Departments of Neurology, Psychiatry and Human Genetics, University of California, Los Angeles

- Helped determine if the lab's machine learning algorithm designed to help analyze de novo variants in whole genomes, could be applied to exon sequence data.

Data Science Research Intern (June 2017 – September 2017)

Dr. Peipei Ping Lab, Department of Physiology, University of California, Los Angeles

- Full time data science research in the NIH BD2K Center of Excellence for Biomedical Computing at UCLA. Duties included collaborating with team members on a clinical case reports project and developing code for data parsing.

Genetics Lab Assistant (August 2016 – April 2017)

Dr. Jeff Maughan Lab, Department of Plant and Wildlife Sciences, Brigham Young University, Provo, Utah

- Helped to extract DNA and develop an optical map for oats using BioNano technology.

Bruins in Genomics Summer Internship (June 2016 – Aug 2016)

Institute for Quantitative and Computational Biosciences, University of California Los Angeles

- Conducted research in the lab of Dr. Bogdan Pasaniuc in competitive bioinformatics training internship. Utilized HESS to analyze local SNP heritability of phenotypes represented by 8 sets of summary statistics, summarized results through graphs and writing, and received a "Poster Award" at the final poster session.

Genetics Lab Assistant (January 2015 – April 2016)

Dr. Rick Jellen Lab, Department of Plant and Wildlife Sciences, Brigham Young University, Provo, Utah

- Researched oat genes using common biotechnology lab techniques including PCR, gel electrophoresis, cloning, and preparing samples for Sanger sequencing.

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Bioinformatics Lab Assistant (September 2015 – December 2015)

Dr. John Kauwe Lab, Department of Biology, Brigham Young University, Provo, Utah

- This lab used genetics and bioinformatics to analyze factors that could contribute to Alzheimer's Disease. My work included running a regression with Plink, researching scientific literature, and attending the 2015 Biotechnology and Bioinformatics Symposium.

Teaching Experience

Teacher's Assistant for SOC GEN 101 (April 2019 – June 2019)

Institute for Society and Genetics, UCLA, Los Angeles, CA

- Teacher's assistant for an introductory genetics class of 45 students
- Led weekly discussion sections. This included going over concepts from lecture, expanding on some concepts, answering questions, giving the students practice problems, and helping students prepare for and start on developing their final papers.
- Developed and presented midterm and final reviews.
- Tutored students one-on-one in office hours.
- Graded homework assignments and tests.
- Improved homework assignments from previous years and worked with the professor to make improvements to the midterm and final exams
- In this class we discussed key genetic concepts including DNA structure and replication, gene expression, mitosis and meiosis, mendelian inheritance, multifactorial traits, evolution, population genetics, and cancer. We also covered more advanced concepts like Manipulating cells and DNA (for example CRISPR Cas-9), reproductive technologies, the genetic basis of behavior, genetic testing, immunity, aging, and epigenetics.

Teacher's Assistant for PWS 188 Intro to Genetics & Biotech (January 2013 – April 2013)

Department of Plant and Wildlife Sciences, Brigham Young University, Provo, Utah

- Teacher's assistant for a class of 46 students introducing them to the field of genetics and biotechnology.
- Graded assignments, presented to the class a presentation on scientific writing, and mentored students on assignments.
- Topics covered in the course included current events in genetics, personal genomics, bioethics, career exploration, and scientific writing.

Programming Languages

- **Bash, Python, R**
- In addition, have worked in Java, Android, C++, and C#

Selected Community Work

WHRA President (April 2019– June 2020)

Weyburn and Hilgard Residents Association, University of California, Los Angeles

- Represent the Weyburn and Hilgard Residential Association (WHRA) to administration of University Housing, the University of California Los Angeles, UCLA Graduate Student Council, and any organization to which the Association belongs
- Preside over meetings of the WHRA executive committee and other including those with University Apartments administrators (Policy Review Board Meetings)
- Develop written agendas for WHRA executive committee meetings
- Assist in planning and putting on activities for the members of the housing association at least once or twice a quarter
- In 2019 was the only returning member of the board and so was able to provide unique support to the rest of the executive committee and help in transitioning to the new board.
- Was re-elected for 2020-2021 school year, but resigned due to moving out as a result of COVID-19

Volunteer WHRA Magnolia Court Representative (November 2017–April 2019) (Volunteer position)

Weyburn and Hilgard Residents Association, University of California, Los Angeles

- Attended meetings of the Weyburn and Hilgard Residential Association (WHRA) in order to help represent the needs of the community members
- Drafted an informal proposal requesting additional visitor parking.
- Aided in planning and executing quarterly activities

Volunteer Club Officer for BYU “Women in Computer Science” club (September 2015 – April 2016)

Brigham Young University, Provo, Utah

- Worked together with other club officers to plan and carry out activities to encourage women in computer science and support them in their needs.

Volunteer full-time representative for The Church of Jesus Christ of Latter-Day Saints (June 2013 – December 2014) *Gilbert, Phoenix, and Tempe Arizona.*

- Honed interpersonal and communication skills as I worked together with companions to serve and teach community members