Vivaswat Shastry

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Summary

- Experience communicating in diverse teams over range of professional settings
  - Across hierarchies in leadership, administrative and membership roles
- Main lead on statistical modeling & data analysis in 4 peer-reviewed publications
- Bioinformatics expertise in 'omics pipelines for projects from genomics to immunology
- Proficiency in teaching classes & workshops in computing for 8 years
  - Certified Software & Data Carpentry Instructor
  - Strong experience working on cloud & high-performance computing (HPC) systems
- Amateur stand-up comedian

Education

University of Chicago (Sep 2020 – Jun 2025, *expected*) Chicago, Illinois
Ph.D. in Genetics, Genomics & Systems Biology (Computational Track)
Thesis: "*Novel & efficient computational methods for likelihood-based inference in population genetics*"

University of Wyoming (Jan 2018 – Aug 2020) Laramie, Wyoming
M.S. in Botany
Thesis: "*Methods for evolutionary inference in mixed-ploidy population genomic data*"

University of Wyoming (Aug 2014 – Dec 2017) Laramie, Wyoming
B.S. in Electrical Engineering with a Minor in Computational Science
Honors: *summa cum laude*

Technical Skills

- **python**: NumPy, SciPy, pandas, matplotlib/seaborn, sklearn, statsmodels, PyTorch, Tensorflow
- **R**: tidyverse (dplyr, ggplot2, tidyr), STAN, Rmarkdown, Shiny
- **Genomics**: sam/vcf/bcftools, GATK, plink (experience with NGS & WGS pipelines)
- **MATLAB**
- **C/C++**: MPI, OpenMP
- *nix, bash, SLURM, snakemake, git/GitHub, Jupyter

Publications (see Google Scholar)

Shastry V, Novembre J (2024): *Representing long-range genetic similarity on a background of spatially heterogeneous isolation-by-distance* (in prep)

Shastry V, Berg JJ (2024): *Allele ages provide limited information about the strength of natural selection* (preprint on bioRxiv)

Shastry V, Adams PE, Lindtke D, Mandeville EG, Parchman TL, Gompert Z, Buerkle CA (2021): *Model-based genotype & ancestry estimation for potential hybrids with mixed-ploidy* (Molecular Ecology Resources)

Harrison JG, Calder WJ, **Shastry V**, Buerkle CA (2020): *Dirichlet-Multinomial modelling outperforms alternatives for analysis of microbiome and other ecological count data* (Molecular Ecology Resources)

Coursework (selected)

- **Statistics**: Multivariate Data Analysis via Matrix Decompositions, Statistical Theory & Methods, Machine Learning & Applied Statistics, Bayesian Data Analysis, Spatial Statistics
- **Genomics**: Principles of Population Genetics, Human Variation & Disease, Topics in Computational Biology (Algorithms, Models, Inference)
- **Computing:** Multicore Programming, Object & Pattern Recognition, Numerical Methods in C++

Honors & Awards

- "Spirit Award" at coding bootcamp at UChicago (for fellowship amongst ~100 grad students, Sep 2020)
- National Tau Beta Pi Scholarship (2017 – 2018)
- University of Wyoming President's Honor Roll (GPA of 4.0, 6 semesters)
- Tau Beta Pi Outstanding Junior (top student in a cohort of ~400, based on academic record)
- Best Software Design Project at Wyoming Undergraduate Research Day (~100 participants, Apr 2017)

Work Experience

Department of Electrical and Computer Engineering, University of Wyoming
Assistant for Engineering Summer Program for Teachers (ESP4T) May 2016 – Dec 2017
- Implemented modules for Arduino and Raspberry Pi to be used in the classroom
- Developed applications in math and science for the K-12 curriculum

Advanced Research Computing Center, University of Wyoming
Research Computing Assistant/Senior Intern May 2016 – Aug 2017
- Conducted and developed material for programming boot camps & workshops
- Investigated benchmarks on the compute cluster to resolve bottlenecks under various paradigms

Leadership & Activities

- Teaching Assistant for the QBio9 bootcamp for incoming graduate students (2023)
- Member of the Genetics DEI Committee at UChicago (2023 – present)
- Helper at UChicago Computational Biology Outreach for high-schoolers (2022 – present)
- Recording Secretary for the Tau Beta Pi Wyoming Alpha chapter (2017 – 2018)
- Secretary for the International Students' Association at UWyo (2016 – 2017)
- Vice-President/President of the Indian Students' Organization at UWyo (2015 - 2016)

References

JEREMY J. BERG
Assistant Professor (*Ph.D. Advisor*)
Human Genetics, University of Chicago
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JOHN NOVEMBRE
Professor (*Ph.D. Co-Advisor*)
Human Genetics and Ecology & Evolution, University of Chicago
E-mail: jnovembre@uchicago.edu

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Adjunct Professor (*M.S. Advisor*)
Botany, University of Wyoming (currently at Illumina Inc.)
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