JOSH JACOBSON

Ph.D. Candidate in Applied Statistics

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EXPERIENCE

Graduate Research Fellow & Tutor
University of Wollongong
Aug 2020 – Present
Wollongong, NSW, Australia

- Conduct Ph.D. research developing hierarchical spatio-temporal statistical models for environmental applications, focusing especially on the global carbon cycle
- Awarded competitive international fellowship to carry out independently-developed research agenda
- Publish research in leading journals; attend and help organize scientific conferences; aid in developing and writing scientific grants
- Translate technical research manuscripts into public-facing content
- Lecture, tutor, and grade applied statistics graduate and undergraduate courses (2 semesters)

Data Science Consultant
Jupiter Intelligence
Sep 2019 – Jan 2023
Boulder, CO, USA

- Developed and helped engineer an approximate Bayesian computation algorithm for parameter estimation in the company's global climate risk product; created a 16-fold speedup due to parallelization, yielding roughly $8,000 in monthly compute cost savings
- Designed, helped build, and extensively tested a proprietary Python package for statistical modeling of climate extremes; the package was adopted in operational workflows to improve efficiency and reproducibility
- Collaborated on scientific reports for industry partners; presented research and development work at scientific conferences
- Full-time position during 2022, and part-time during 2019–2021

Undergraduate Researcher & Tutor
University of Colorado
Aug 2017 – May 2019
Boulder, CO, USA

- Researched and developed visualization software for multi-objective optimization problems in water-resource management
- Received Active Learning Award for engagements in research, service, and two professional internships
- Tutored and graded applied math and computer science undergraduate courses (2 semesters)

SERVICE & LEADERSHIP

Front-of-House Volunteer
Flame Tree Community Food Co-Op
Mar 2023 – Present; 2 hours/week
Thirroul, NSW, Australia

- Ensure a positive customer experience by providing friendly, efficient service; process deliveries into inventory and maintain stock levels

Radio Show Host
Probably Novel Radio Show & Podcast
Jan 2019 – May 2019; 2 hours/week
Boulder, CO, USA

- Highlighted research achievements of STEM undergraduates in a weekly, hour-long radio interview; organized and coordinated with guests

Engineering Honors Program Mentor
University of Colorado
Aug 2016 – May 2018; 3 hours/week
Boulder, CO, USA

- Led groups of first-year engineering students in readings and discussions regarding the transition to college and beyond

EDUCATION

Ph.D. in Applied Statistics
University of Wollongong
2020 – Present

M.S. in Applied Mathematics
University of Colorado
2018 – 2020   *GPA: 3.8*

B.S. with Honors in Applied Mathematics
University of Colorado
2015 – 2019   *GPA: 3.7*

Minors: Atmospheric Science, Computer Science

SKILLS

Quantitative & Technical Skills

- Scientific programming in Python & R (7 years), with focuses on:
  - Geospatial data analysis (e.g., dask, numpy, pandas, scipy, sf, stars, xarray)
  - Bayesian and spatial statistical modeling (e.g., fields, FRK, gstat, PyMC, R-INLA)
  - Data visualization (e.g., matplotlib, ggplot2)
- Contributed to several open-source projects (e.g., ArviZ, Mamba, parasol, parcoords)
- Proficient in CDO, Git, LaTeX, Linux, and high-performance computing environments
- Ability to run, analyze, and interpret global atmospheric flux-inversion models

Communication Skills

- 5 peer-reviewed scientific articles in high-impact journals, including *Remote Sensing*; outlined, drafted, and edited manuscripts; responded to peer-reviewed critiques as both a lead and co-author
- 14 scientific talks, nationally and internationally, to a range of technical and non-specialist audiences; received "best poster" awards from professional societies
- Developed publication-quality figures to craft coherent stories and visualize complex results

Project Management Skills

- Collaboratively managed multiple research projects simultaneously across groups of co-authors in multiple time zones
- Self-motivated: able to set and meet internal deadlines to ensure effective dissemination of research results
- Experience managing and mentoring an undergraduate intern on an original research project