




Cassidy K. Buhler (she/her)

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 cassie-buhler

 cassiebuhler.github.io/

 cassiebuhler

EDUCATION

Ph.D. Operations & Business Analytics, Computational Data Science Minor
Drexel University

Philadelphia, PA
09/2019 – 06/2024 (Expected)

B.S. Mathematics, Statistics Emphasis
University of Utah

Salt Lake City, UT
08/2015 – 05/2019

EMPLOYMENT

Doctoral Research Fellow
Drexel University

09/2019 – 06/2024

- Led research projects that applied optimization methods and models to machine learning and biodiversity conservation, resulting in 5 first-authored papers (2 published, 1 under review, 2 in preparation) and 8 conference presentations.
- Developed an open-source decision-making tool for spatial conservation planning that allows for more complex decision inputs than existing models. This framework utilized mixed-integer nonlinear programming to select protected areas that minimize a species' predicted extinction risk.
- Advanced unconstrained optimization methods for nonlinear programming by improving the step direction calculation in nonlinear conjugate gradient methods. When solving large instances of machine learning problems, the algorithm exhibited a reduced iteration count.
- Served as an instructor and TA in the Department of Decision Sciences & MIS for over 25+ classes in statistics, business analytics, operations research, operations management, and MIS. Earned 2 student-nominated teaching awards and course evaluation scores above department/college averages.

Research Assistant
University of Utah

08/2018 – 08/2021

- Collaborated on an interdisciplinary team in order to mathematically model the response of castration-resistant prostate cancer under various treatment regimens.
- Simulated biological dynamics as differential equations, formulating models with differing mechanism complexity.
- Evaluated modern treatment regimens under this scheme and first-authored a journal publication that disseminated findings to academic and medical audiences.

Computer Scientist Intern
United States Air Force

05/2018 – 08/2018

- Conducted research related to improving software for USAF aircraft in the Software Engineering Group.
- Executed data analysis, cluster analysis, and data visualization in order to present and deliver insights to team leadership.

SKILLS

PROGRAMMING

Language	Libraries/Packages/Toolboxes
PYTHON	PyTorch TensorFlow Pandas BeautifulSoup scikit-learn Keras Seaborn rasterio Google Earth Engine
R	tidyverse ggplot rgdal raster rgeos SDMTools deSolve
MATLAB	Deep Learning Statistics & Machine Learning Optimization Financial Computer Vision

OPTIMIZATION SOFTWARE

Software	Applications
GUROBI	Quadratic Programming Linear Programming
Pyomo	Mixed-Integer Nonlinear Programming Derivative-Free Optimization
CVX	Convex Optimization
CPLEX	Integer Programming Linear Programming
AMPL	Nonlinear Programming

COURSEWORK

Subject	Courses
Comp Sci	Data Structures & Algorithms Deep Learning Artificial Intelligence Machine Learning Data Mining
Data Science	Data Acquisition & Pre-Processing Data Analysis & Interpretation
Statistics	Statistical Inference Multivariate Analysis Time Series Analysis
Applied Math	Nonlinear Programming Linear Programming Stochastic Optimization Math Econ Game Theory