

Cassidy K. Buhler (she/her)

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in [cassie-buhler](#)

🐙 [cassiebuhler.github.io/](#)

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EDUCATION

2024	Ph.D. Operations & Business Analytics Minor: Computational Data Science <i>Expected Graduation: June 2024</i>	Drexel University Philadelphia, PA
2019	B.S. Mathematics <i>Statistics Emphasis</i>	University of Utah Salt Lake City, UT

EMPLOYMENT

2019 – Present	Doctoral Research Fellow <i>Department of Decision Sciences & MIS</i>	Drexel University
	<ul style="list-style-type: none">• Led research projects that applied optimization methods and models to machine learning and land conservation.• 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.• First-authored 5 papers (2 published, 1 under review, 2 in preparation) and delivered presentations at 8 conferences.	
2019 – Present	Instructor & Teaching Assistant <i>Department of Decision Sciences & MIS</i>	Drexel University
	<ul style="list-style-type: none">• Served as an instructor for 4 classes and 2 workshops, and as a TA for 25+ classes.• Created and delivered instructional materials for undergraduate, MS, MBA, Executive MBA, and PhD students in statistics, business analytics, operations research, operations management, and MIS courses.• Earned 2 student-nominated teaching awards and achieved course evaluation scores above department/college averages.	
2018 – 2021	Math Biology Research Assistant <i>Department of Mathematics</i>	University of Utah
	<ul style="list-style-type: none">• Developed math models to study 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.	
2018	Computer Scientist Intern <i>Hill Air Force Base</i>	United States Air Force
	<ul style="list-style-type: none">• Conducted research related to improving software for USAF aircraft in the Software Engineering Group.• Hired under the Premier College Intern Program and earned a position in the PALACE Acquire program.	

SKILLS

PROGRAMMING

Language	Libraries/Packages/Toolboxes
PYTHON	PyTorch TensorFlow Pandas BeautifulSoup scikit-learn Keras Seaborn rasterio
R	tidyverse ggplot rgdal raster rgeos SDMTTools 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
Computer Science	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