Cassidy K. Buhler (she/her)

✉ cb3452@drexel.edu   in cassie-buhler   🌐 cassiebuhler.github.io/   ○ cassiebuhler

EDUCATION

Ph.D. Operations & Business Analytics, *Computational Data Science Minor* — Philadelphia, PA
Drexel University — 09/2019 – 06/2024 (Expected)

B.S. Mathematics, *Statistics Emphasis* — Salt Lake City, UT
University of Utah — 08/2015 – 05/2019

EMPLOYMENT

Doctoral Research Fellow — 09/2019 – 06/2024
Drexel University

- Led research projects that applied optimization methods and models to machine learning and land 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 — 08/2018 – 08/2021
University of Utah

- 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 — 05/2018 – 08/2018
United States Air Force

- 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