Cassidy K. Buhler (she/her)

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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

- Assigned to the Software Engineering Group at Hill AFB in the Premier College Intern Program (PCIP).
- Executed data analysis, cluster analysis, and data visualization in order to present and deliver insights to team leadership.
- Offered a full-time position in the PALACE Acquire (PAQ) program due to satisfactory performance.

SKILLS

PROGRAMMING

Language	Libraries/Packages/Toolboxes
Python	PyTorch │ TensorFlow │ Pandas │ BeautifulSoup │ scikit-learn │ Keras │ Seaborn │ rasterio
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
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