

Campus Address
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Benjamin A. Carman

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Permanent Address
12800 Florida Ave NE
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Education: **Honors Tutorial College, Ohio University**, Athens, OH *May 2021 Conferral*
Bachelor of Science, Double Major: Computer Science and Mathematics | 4.0 GPA

Work Experience: **Machine Learning Research Assistant** *May 2020 and August 2020*

Ohio University, Computer Science Department | Athens, OH

- Implemented a recurrent neural network in PyTorch for a novel natural language processing task
- Wrote a context-free grammar in Rust to mechanically generate training data
- Connected model to Weights & Biases and Tensorboard for efficient hyperparameter tuning

REU Research Assistant in Software Engineering *May 2020 – August 2020*

Carnegie Mellon University, Institute for Software Research | Pittsburgh, PA

- Researched applications of multi-agent reinforcement learning (RL) to combat poaching
- Designed and implemented game environment and visualization with OpenAI Gym to model poachers seeking targets in the wild while rangers and drones try to catch/deter poachers
- Evaluated and optimized coordinated defender strategies using RL algorithms MADDPG and PPO

Summer Data Scientist *June 2020 – August 2020*

Tufts University, Metric Geometry and Gerrymandering Group | Boston, MA

- Digitized PDF precinct maps and merged election data using QGIS, Pandas, & GeoPandas

DAAD RISE Germany Research Intern *May 2019 – August 2019*

Universität Bonn, Institut für Informatik | Bonn, Germany

- Research internship sponsored by German Academic Exchange Service (DAAD)
- Studied n-fold integer linear programming (ILP) and contributed C++ implementations of new solving algorithms that approach nearly linear runtime
- Achieved a speedup by a factor of dimensionality over previous n-fold ILP solvers

REU Research Assistant in Software Verification *May 2018 – May 2019*

Ohio University, National Science Foundation | Athens, OH

- Performed research in software verification of multiplicative weights update algorithm
- Contributed a Python linear classification application to a verified MWU client
- Wrote proofs and code for a completely verified linear classifier in COQ

Leadership & Involvement: **Treasurer**, Singing Men of Ohio *April 2020 – Present*

Student Representative, Ohio University Curriculum Council *August 2018—Present*

Senator At-Large, Ohio University Student Senate *April 2019 – April 2020*

Treasurer, Ohio University College Democrats *April 2018 – April 2019*

Association of Computing Machinery
Ohio University Singers

Ohio University Math Club
Section Eight A Capella Collective

Honors: Dean's List, Fall 2017 – Spring 2020
Eagle Scout
DAAD RISE Germany Research Grant, Awarded in 2019 (<16% acceptance) and 2020 (<19% acceptance)
National Eagle Scout Association \$25,000 Cooke Academic Scholarship Central Region Recipient
OHIO Premier Scholarship Recipient (Full Tuition)
REU in Software Engineering, CMU (11% acceptance)

Skills: **Programming Languages:** C++ & Python (Expert); Coq, Rust, R, HTML, & CSS (Familiar)
Frameworks: Pytorch, Scikit-learn, NumPy, SciPy, Seaborn, Matplotlib, Pandas, GeoPandas, OpenMP, OpenMPI, OpenCV, Gym
Tools: Git, Tensorboard, Weights & Biases, Doxygen, QGIS, Mac, Windows, Linux
Languages: Spanish (Proficient), German (Beginner)
Expert in modeling & constrained optimization with AMPL & Gurobi APIs
Expert in several machine learning, deep learning, & reinforcement learning algorithms
Strong written and oral communication, servant leadership, and teamwork