Trevor Olsen

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WORK HISTORY

- **Freddie Mac**, McLean, VA, Senior Data Scientist (08/2022 to present)
  Constructing models to predict the value of homes and national/state/county level housing market indices. Won first place in the 2023 Q1 Hackathon which revolved around school/house matching using GIS data
- **University of South Carolina**, Columbia, SC, Graduate Assistant (08/2016 to 12/2021)
  Instructed or graded for 18 courses and conducted research. Earned an average evaluation of 4.75/5
- **Partners for Minorities in Engineering and CS**, Columbia, SC, Workshop Leader (06/2019 to 06/2020)
  Prepared and led curriculum to inspire high school students to pursue a STEM career
- **Miami Dade College**, Miami, FL, Adjunct Faculty (05/2015 to 08/2016)
  Taught a wide range of classes including: Financial Mathematics, Trigonometry and Calculus
- **University of Miami**, Coral Gables, FL, Tutor (08/2014 to 05/2015)
  Assisted struggling athletes in math courses

PROJECTS

- **House Price Prediction**
  - Leveraged transactions spanning decades to create a multilayered predictive model
  - Increased accuracy by 2% in predefined testing regions
  - Implemented a geospatial lookup algorithm that runs in constant time
  - Created indices that mimic existing housing indices requiring less data and resources
- **NCAA March Madness Bracket Predictor**
  - Assembled 20 years of data with web scraping before pre-processing with Pandas
  - Predicted the correct winner of each game 75% of the time using predictive models (ex: Logistic Regression)
  - Utilized a Bayesian optimizer to tune the hyper-parameters
- **Computer Science Dissertation**
  - Developed more than 10 intelligent sampling methods which revamped existing results and solved novel problems in the robotics pursuit-evasion domain
  - Implemented in C++ with additional Python and Shell scripts to automate over 5000 simulations
  - Reduced the time to generate a solution by 90% compared to the best-known existing algorithm
- **Mathematics Dissertation**
  - Analyzed over a billion graph isomorphism classes, organized classes by maximized attributes and generalized structures
  - Created in Python (SageMath), resulted in 3 written publications and 2 articles in preparation

EDUCATION

- **Ph.D. in Computer Science** (2021), University of South Carolina, Columbia, SC
- **Ph.D. in Mathematics** (2020), University of South Carolina, Columbia, SC
- **M.S. in Computer Science** (2020), University of South Carolina, Columbia, SC
- **M.A. in Mathematics** (2015), University of Miami, Coral Gables, FL
- **B.S. in Mathematics and Computer Science** (2013), Palm Beach Atlantic University, West Palm Beach, FL
- **A.A. in Liberal Arts** (2011), Inver Hills Community College, Inver Grove Heights, MN

SKILLS & STRENGTHS

- **Programming Experience** – Python (Jupyter, Scikit-learn, PyTorch, Matplotlib, Seaborn, Plotly, Pandas, Numpy, SageMath, XGBoost, LightGBM, NetworkX, etc.), SQL, Latex, C++, HTML, Shell, R
- **Operating Systems** – Linux, Windows, Mac OS
- **Theory** – Graph Theory, Deep Learning, Machine Learning, Combinatorics, Probability, Statistics, Robotics, Path Planning, Algorithms, Computational Geometry, Data Science, Abstract and Linear Algebra