AIDAN JAMES DRAPER

https://aidandraper.com ⋄ https://github.com/adraper2
2711 Wilton Drive, Cambria CA 93428 ⋄ adraper2@elon.edu ⋄ (845) 926-6960

EDUCATION

University of Notre Dame, Notre Dame, Indiana — *Starting Fall 2019*
Ph.D. in Computer Science and Engineering

Elon University, Elon, North Carolina — *Expected Graduation: May 2019*
B.S., Double major in Computer Science and Statistics — GPA: 3.68

RESEARCH INTERESTS

Primary interests include Machine Learning, Computer Vision, and Statistical Modeling. Specific interests are in Neural Networks, Bayesian Modeling, and Classification Algorithms.

WORK EXPERIENCE

Elon University Math and Stats Department — February 2019 - Present
Teaching Assistant — *Elon, North Carolina*

Responsible for assisting with teaching, presenting and holding office hours for STS 347 - Statistical Computing and Simulation Theory in R.

Elon Center for Organizational Analytics — February 2018 - Present
Data Science Intern — *Elon, North Carolina*

Lead a team in investigating a large IoT dataset in order to build a predictive model to measure machine efficiency. Used python, R, and Tableau to manipulate matrices with numpy, create a random forest model, and visualize a data story within a dashboard.

Data-intensive Scientific Computing REU at Notre Dame — Summer 2018
Student Researcher — *Notre Dame, Indiana*

Built a random forest classifier to measure grass species abundance using remote sensing and Landsat satellite image processing in R. Reconstructed a Bayesian hierarchical model that used a Poisson point process and parallelized it to run twice as fast as the original.

Elon University — December 2016 - May 2017
Web Developer Intern — *Elon, North Carolina*

Updated an outdated non-profit website run by the university by embedding YouTube video playlists, reformatting CSS styling, and inserting Javascript class references.

INDEPENDENT PROJECTS

Guitar Tablature Transcription (Current Endeavor)
Using Pytorch and OpenCV to transcribe guitar video tutorials into tablature with a neural network.

Portfolio Site in React.js (Current Endeavor)
Educating myself in the ReactJS library in order to rebuild my portfolio site. Hosting on GitHub Pages.

Studying Image Quality Loss in Grayscale Image Filtering
Measured the effects of denoising filters, including OpenCV's Bilateral and Non-local Means filters, on low-light photos. Built a Shiny App to survey participants. Performed an ANOVA and ANCOVA.

Manhattan College Business Analytics Competition
Analyzed 10 million rows of NYC contract spending and allocation data with three other students, built a logistic regression model to predict contract allocation, created a data story, and then, presented a poster on our findings. Constructed a Glassdoor web-scraper in R to collect employee review data on companies in NYC and ran a sentiment analysis using the Textblob python package. Placed fourth.

HanesBrand Data Analytics Competition
Collaborated with two teammates to implement three data mining algorithms, including a sentiment analysis, association rules, and entity matching, in python and SQL on more than 1.8 million rows. Placed first out of twenty teams.

Analyzing Lyrics in Saved Music on Spotify
Pulled song data from the Spotify API and song lyrics from the Genius API. Hosted the database in a MySQL relational database on phpMyAdmin. Implemented Gensim's LDA to model topics in song lyrics, ran a sentiment analysis using NLTK's Vader, and visualized the results in Tableau.

PUBLICATIONS & PRESENTATIONS

Journal Articles

1. **Aidan J. Draper** and Laura L. Taylor. A survey on the visual perceptions of gaussian noise filtering on photography. *North Carolina Journal of Mathematics and Statistics*. Under Review.

Presentations

1. "Investigating Image Quality Loss," with Laura Taylor, oral presentation at the *UNC, Greensboro Regional Mathematics and Statistics Conference*, Greensboro, NC, November 2018.
2. "Investigating image quality loss while using statistical methods to filter grayscale Gaussian noise," with Laura Taylor, video presentation at the *Electronic Undergraduate Statistics Research Conference*, November 2018, `https://www.causeweb.org/usproc/eusrc/2018/virtual-posters/3`.
3. "Classifying Marshland Plant Species by Processing Light Reflectance in Satellite Images," with Luke Onken and Jason McLachlan, poster presentation at the *University of Notre Dame Summer Research Symposium*, Notre Dame, IN, July 2018.

TECHNICAL SKILLS

Languages	bash, C, git, Java, JavaScript (React.js), python, R, SQL
Software	Excel, Jupyter, MySQL Workbench, RMarkdown, Shiny Apps, Tableau
Operating Systems	Mac OSX, Linux/Ubuntu
Publishing	Google Drive, LaTeX, Microsoft Office

ACADEMIC ACHIEVEMENTS

Mu Sigma Rho honors society, Omicron Delta Kappa honors society, Gamma Sigma Alpha honors society, President's List (2x), Dean's List (2x), Elon Kickbox Grant Receiver, HanesBrand Competition Winner, Manhattan College Business Analytics Best Poster Award

ACTIVITIES AND INTERESTS

Activities	Photo Club President, Beta Theta Pi Founding Father and Former VP of Programming, Statistics Club Member, Physical Computing Group, Tiny Home Project
Interests	Guitar, Sustainability, Kayaking, Music, Photography