Nathalie Jones, M.S.

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Summary

Dedicated to harnessing the transformative power of mathematics and data science, I am passionately committed to leveraging innovative methods to develop solutions that support human users in the extraction of valuable information in large, complex data reservoirs

Education

Kennesaw State University	***GPA***	***Graduation***
Master of Science in Data Science and Analytics	*4.0*	**Dec 2023**
Bachelor of Science in Computational and Applied Mathematics *Minor in Applied Statistics and Analytics*	*2.8*	**Dec 2021**

Publications

1. **"Faculty Awareness Project" (Under Development)** – *First Author* — **Dec 2023**
   - Developed and deployed a survey to explore faculty knowledge of campus services that aid students experiencing homelessness
2. **"Breaking the Cycle"** – *Co-Authored Article* — **Oct 2023**
   - Co-authored an article summary of work conducted by my lab director where she evaluated college support programs for former foster youth

Awards & Honors

I. **Keynote Speaker at KSU's Fall Analytics Day** — **Nov 2023**

II. **Awarded $250 prize at KSU's Spring Analytics Day 2023** — **May 2023**

III. **Awarded School of Data Science & Analytics Annual Scholarship** — **Aug 2023**

IV. **KSU published recognition of my conference acceptances in 2022** — **Aug 2022**

V. **Awarded $250 Prize at KSU's Fall Analytics Day 2021** — **May 2021**

Conferences

1. **Southeastern SAS User Group 2023** — **Oct 2023**
2. **Harvard's National Collegiate Research Conference 2022** — **Jan 2022**
3. **Posters on the Hill 2022** — **Apr 2022**
4. **Posters at the GA Capitol 2022** — **Apr 2022**
5. **Kennesaw State University Bi-Annual Analytics Day** — **Apr/Nov 2021 – 2023**

Work Experience

1. **CARES Research Lab** – *Graduate Research Assistant* — **Aug 2022 – Dec 2023**
   - Developed research on foster and homeless youth in higher education
2. **IHG Hotels & Resorts: Summer Internship** – *Data Science Internship* — **Jul 2023 – Aug 2023**
   - Analyzed the ROI of a promotional campaign and presented my findings to the head of advanced analytics and C-suite executives
3. **Graduate Teaching Assistant** — **Jan 2022 – May 2022**
   - Assisted students by helping them develop their code, create visuals, and find 3rd-party data that can be brought into their analysis

Posters, Papers, & Presentations

1. **"An Efficacy Rating for March Madness Tournament Seeding"** – *Coded in Python, SAS*
   - Developed an 'Efficacy Rating' for the NCAA March Madness tournament, enhancing tournament seeding fairness and predictability — **Dec 2023**
2. **"Charting the Course: A Data Driven Approach"** – *Coded in R, Python*
   - Scraped PhD program information and faculty data from 220 programs across 60 U.S. universities — **Nov 2023**
3. **"Mapping Post-Secondary Transfer Rates"** – *Coded in R, Python*
   - Studied the association between institutional transfer rates and the number of schools within 100 miles of each other — **May 2023**
4. **"Why Withdraw?"** – *Coded in R, Python, SAS*
   - Continued research into the CollegeScorecard with a longitudinal analysis on post-secondary withdrawal rate — **Dec 2022**
5. **"Classification of Pell Institutions"** – *Coded in R, Python*
   - Used R and Python to clean, structure, and create/compare several models including XGBoost, PCA, Random Forest, and Logistic Regression — **Dec 2021**
6. **"Does the Pell Grant Come with a Price?"** – *Coded in R, Python*
   - Spatially joined the U.S. Census with the CollegeScorecard to analyze associations between debts accumulated by either an independent or dependent student — **Dec 2021**
7. **"Two-Layer Neural Network"** – *Coded in Python*
   - Created a 0, 1, or 2-layer neural net in Python as a class object to predict whether an individual in 1994 earned $50,000 or more from Census data — **May 2021**
8. **"Access to Higher Education"** – *Coded in R*
   - Conducted research using parametric and nonparametric methods to study student outcomes and institutional attributes associated with schools where a majority proportion of students receive a Pell Grant — **May 2021**

Corporate Projects

1. **"Detecting Data Oddities"** – *Team Project Coded in R, Python*
   - Wrangled 460 million reservation activities provided by IHG Hotels & Resorts to create easy-to-use detection tools using statistical techniques — **Dec 2023**
2. **"Predicting Customer Churn"** – *Team Project coded in R, Python, SAS*
   - Developed and compared several models to predict customer churn from data provided by Southern Company on customers in Ohio — **Dec 2023**
3. **"Predicting Email Click"** – *Team Project Coded in R, Python*
   - Collaborated with a team to build, test, and compare several models that predict whether a member would click on an email — **May 2023**
4. **"Modelling User Chatbot Experience"** – *Coded in R, Python*
   - Analyzed chatbot interactions using text analysis methods and libraries such as SpaCy, BERTopic, and SentenceTranformers — **Dec 2022**
5. **"Using Logistic Regression to Build Credit Scores"** – *Coded in R, Python, SAS*
   - Created a logistic regression model in SAS using 1.2M records with over 300 attributes to predict whether a customer was considered a credit risk — **May 2022**

Research & Academic Interests

1. **Statistical Theory, Data Analysis, and Analytical Storytelling**
   - Utilize interpretive data storytelling to communicate complex results
   - Enhance reliability of machine learning models and traditional statistical methods
   - Develop robust practices of automatically processing high-dimensional data
   - Ensure impact of recommendations by forging generalizable data storytelling devices
   - Foster interdisciplinary practices that streamline data extraction and preparation

2. **Theoretical, Computational, and Applied Mathematics**
   - Improve analytical capabilities by applying core principles of group theory to enhance the process of information extraction
   - Utilize graph theory and network analysis techniques to demystify and interpret black box algorithms
   - Enhance data processing efficiency by employing combinatorial methods, linear algebra, and matrix analysis techniques to unravel and manage complex datasets
   - Design innovative educational tools and methods to simplify core mathematical concepts for undergraduate students, focusing on areas such as linear algebra, probability, and discrete mathematics
   - Investigate applications of matroid theory in dimensionality reduction, algorithmic fairness, and data fusion

3. **Modeling Complex Systems, Machine Learning, and AI**
   - Enhance data utility in daily life by developing intuitive, human-centered AI solutions that streamline discovery and interpretation of complex information, focusing on experience and accessibility to facilitate decision-making and knowledge acquisition
   - Develop algorithms that enable AI to answer “what if” questions via causal inference
   - Improve efficiency, analytical power, and scalability of AI using machine learning, traditional statistical methods, quantum computing, and novel modeling techniques
   - Generate the audio and video content recommendations using generative AI
   - Deliver clear and accessible AI interpretations

4. **Social Impact and Data Equity**
   - Improve reliability and fairness in AI and statistical practices by developing robust bias metrics, utilizing diverse and equitable datasets, and focusing on fair data practices
   - Utilize diverse datasets to derive transformative insights, emphasizing data equity.
   - Examine ethical implications of automated decision-making, focusing on social impact and data equity.
   - Champion the use of data science in advocating for underrepresented and marginalized communities.
   - Research adaptive learning algorithms to enhance statistical reliability and fairness in real-world social networks