Joseph Godinez

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Research Interests

Applications of Large Language Models, Consequence-Driven Solutions, Transformer-Based Neural Networks, Bayesian Optimization, Inferential Statistics, Privacy Accessibility and Findability, Applications of Machine Learning in Education, Privacy-by-Design Implementation in Educational Software, Prompt Engineering, Wizard-of-Oz Studies

Education

University of Maine May 2024
Bachelor of Science in Mathematics (minor in Computer Science) *Current GPA: 3.65/4.0*

Relevant Coursework

Completed Courses: Single- and Multi-variable Calculus, Differential Equations, Object-Oriented Programming, Data Structures and Algorithms, Computer Architecture, Introduction to Software Engineering, Discrete Structures, Linear Algebra, Number Theory, Real Analysis, Abstract Algebra, Probability Theory, Numerical Analysis, Discrete Mathematics, Deep Learning and Neural Networks
Courses In Progress: Complex Analysis, Mathematical Statistics, Topology

Awards

Dean's List: Fall 2020, Spring 2021, Spring 2022, Spring 2023, Fall 2023
Theodore and Dorothy Whitehouse Scholarship: Spring 2022
George and Helen Westen Scholarship: Spring 2023

Skills

Programming Languages: C, Java, Python, JavaScript, HTML/CSS, LaTeX, PHP, MATLAB, R
Tools: Git/GitHub, Unix Shell, VS Code, Moodle, Amazon Web Services, Apache, Android Studio, VIM
Libraries: Keras, pandas, NumPy, Matplotlib, PyTorch, graphics.py, Seaborn

Experience

Servant Heart Research Collaborative | *Student Software Developer* March 2023 - Present

- Member of National Exam Test Tool (NETT) Team responsible for building a website used by secondary education students in Sierra Leone
- Implemented features including Key Concept Exam (KCE) tools for secondary education exams, in-question source link generation, and custom vector graphics
- Debugged PHP, CSS, JavaScript, XML, and JSON code using VIM and nano
- Managed live and development server instances using AWS EC2 and Route53 tools
- Maintained validity of Apache instance SSL certificate and private.key files with replacement when necessary
- Oversaw and professionally reported site activity using Uptime.com and core Moodle resources
- Created video and audio tutorials detailing methods

Privacy Engineering Regulatory Compliance Lab | *Student Research Assistant* January 2023 – Present

- Co-authored a research paper analyzing the accuracy of ChatGPT answering privacy-related questions
- Assisted the faculty advisor as a sub-reviewer for peer-reviewed research
- Prepared and presented literature reviews on Internet of Things (IoT) privacy research
- Contributed to discussions regarding user privacy and security, privacy policy analysis, and importance of privacy regulation regarding IoT devices

Center for Research in Stem Education | *Maine Learning Assistant – Leader* August 2021 – Present

- Helped prepare course material for Pre-calculus and Calculus II with instructor and graduate teaching assistants
- Provided in-class answers and explanations to improve student understanding and the learning environment
- Nominated for 2023 Undergraduate Student Employee of the Year for outstanding work in this position
- Selected as one of six Maine Learning Assistant Leaders and subsequently coordinated team-building events and informational support for new Maine Learning Assistants

University of Maine Admissions | *Team Maine – Leader* April 2021 – Present

- Conducted campus-wide tours for prospective students and visitors
- Addressed inquiries professionally with direction to correct information and sources
- Provided feedback and suggestions for improvements to tour route and dialogue
- Granted training and certification responsibilities for new Team Maine tour guides

Mathematical Association of America | *Math Olympiad Program – Resident Assistant* June 2022

- Assisted with resident well-being and management
- Managed nightly check-in alongside lead counselors to ensure all residents were accounted for
- Volunteered as group leader for day trip to Kennywood Park and ensured resident safety throughout

Projects

An Investigation into Problem-Solving in the Calculus II Classroom January – December 2023

- Engineered a pairwise interview process to diagnose potential student misunderstanding when analyzing various integration calculus problems
- Organized and informed a thesis committee on the progress of the project
- Constructed a theoretical framework based on present and past learning theory and mathematics education research
- Recorded and transcribed audio data for qualitative analysis and comparison
- Built comprehensive literature review informed on cognitive psychology, learning theory, undergraduate math education, and various other topics
- Authored scientific manuscript reporting results and analysis with associated literature review
- Defended project and associated reading list and awarded *Highest Honors*

Evaluating Privacy Related Questions from StackOverflow: Can ChatGPT Compete? June 2023

- Collaborated on annotating 90 privacy-related questions and answers from StackOverflow
- Compared privacy classifications with fellow researchers using two relevant privacy taxonomies
- Co-authored associated paper accepted to Evolving Security and Privacy Requirements Engineering (ESPRE '23) workshop at 31st IEEE International Requirements Engineering Conference
- Contributed suggestions for future work using automated natural language inference and alternative methods for generating a data set

Multi-species Classification Using Convolutional Neural Network November 2023 - Present

- Separated data set into training, validation, and testing subsets
- Constructed image generators for validation and testing subsets
- Built a convolutional neural network (CNN) using the TensorFlow Keras library consisting of Conv2D, MaxPooling2D, BatchNormalization, and Dropout layers

- Trained and refined network, including optimizing learning and dropout rates and image augmentation properties
- Achieved 86% training accuracy and 90% validation accuracy

Math Anxiety in the Calculus II Classroom November 2022

- Constructed and piloted an investigation into potential learning discomfort and math anxiety in Calculus II (MAT127) students
- Authored a Google Forms survey with questions regarding learning anxiety both in general and in mathematics
- Analyzed qualitative and quantitative results from 31 participants
- Presented results in Honors tutorial class with associated background information

Analysis of Modern Methods for Gaussian Process Regression January 2024 – Present

- Organized plan for comparison of modern nonparametric Gaussian process regression methods
- Received funding for presenting project at Student Research Symposium