Katrina Arbogast

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Summary

Highly skilled Data Architect with extensive experience in designing and optimizing data pipelines and implementing cost-effective solutions in AWS environments. Demonstrated expertise in creating impactful visualizations and statistical analyses to support decision-making for diverse stakeholders. Proven track record in leading data-centric projects, collaborating with cross-functional teams, and driving automation to enhance efficiency. Strong research background in animal-inspired robotics with proficiency in deep learning and kinematic analysis. Adept in technical skills including Python, R, AWS CDK, and Git, complemented by a robust foundation in applied mathematics and data science. Recognized for leadership and instructional capabilities, fostering both technical and artistic development in professional and educational settings.

Professional Cloud Engineering Experience

Software Engineering Intern **Apr. 2024 – PRESENT**
PTx Trimble *Westminster, CO*

- Led the takeover and enhancement of AWS-based data pipeline ETL project, ensuring seamless data processing of customer application interaction analytics.
- Developed comprehensive visualizations tailored for 90+ stakeholders, meeting diverse decision-making needs.
- Implemented cost-saving measures resulting in an estimated annual savings of 97% through optimized data processing and resource allocation.

Software Engineering Intern **May 2023 – Mar. 2024**
Trimble Inc. *Westminster, CO*

- Engineered AWS CDK data pipeline for autonomous agriculture vehicle testing data, improving analysis and visuals.
- Engaged with stakeholders to transform current manual data processing workflows into an automated data pipeline increasing efficiency and scalability and implemented parallelization strategies, enabling simultaneous analysis.
- Collaborated with cross-functional teams (product managers, vendors, engineers) to align with business objectives.
- Designed a modular and extensible architecture to seamlessly accommodate evolving analysis requirements.
- Conducted advanced statistical analyses beyond basic visualizations, providing deeper insights into data patterns and trends as well as offering statistical expertise in the development of supplementary projects.

Research Experience

Graduate Researcher **Oct. 2022 – PRESENT**
University of Colorado, Boulder *Boulder, CO*

- Collaborated in Dr. Kaushik Jayaram's Animal Inspired Movement and Robotics Laboratory (AIM-RL), specializing in araneae locomotion research for application in compliant legged systems.
- Implemented deep learning neural networks for 3D pose estimation of spider locomotion using DeepLabCut in Python.
- Led the development of kinematic and statistical analysis to visualize and quantify the statistical differences of spider locomotion given lateral constraints in Python.
- Managed version control using Git for code base integrity.

Leadership Experience

Head Ballet Instructor, Competition Team Coach **Aug. 2018 – Jun. 2022**
Creative Edge Dance Studio *Reno, NV*

- Developed and implemented ballet curriculum for a nationally ranked dance studio, ensuring industry alignment and artistic excellence.
- Led competition team rehearsals, fostering skill development, artistic expression, and team cohesion.
- Collaborated with studio management to strategize and execute performance schedules, competitions, and special events, contributing to the studio's success and reputation.

Education

University of Colorado, Boulder **Aug. 2022 – May 2024**
Master of Science, Data Science *Boulder, CO*

University of Nevada, Reno **Aug. 2018 – May 2022**
Bachelor of Science, Applied Mathematics *Reno, NV*

Projects

Sentiment Analysis of Apple Tweets | *Python, sklearn, Text Classification* **Apr. 2024 - May. 2024**

- Applied sentiment analysis to Apple-related tweets through SVMs using the scikit-learn library.
- Employed preprocessing techniques to convert the raw tweet text into a matrix of token counts, capturing the frequency of 5000 unique feature words.
- Fine-tuned model performance by applying multiple kernel techniques (Linear, Polynomial, and Radial Basis Function).
- Presented project methodology, results, and conclusions in a detailed report, highlighting the effectiveness of using Support Vector Machines for text classification.

Seahorse Inspired Robot | *Team Manager, AutoCAD, Laser Machine, Prototyping* **Jan. 2023 - May. 2023**

- Managed a multidisciplinary team, organized roles, spearheaded community engagement, and implemented time management strategies to ensure project milestones were met.
- Led the manufacturing and design efforts of a seahorse-inspired robotics project aimed at enhancing flexibility, compressibility, and maneuverability.
- Developed the central body design and leg modules using a stack-lamination technique with origami construction.
- Conducted research on the model species Hippocampus Cuda to inform design decisions and bio-inspired approaches.
- Contributed to the writing and documentation of the project, highlighting objectives, methodologies, and discussions.

Modeling Wildfires in the United States | *Python, R, sklearn* **Aug. 2023 - Dec. 2023**

- Investigated wildfire data in US from 2000 to 2020 using unsupervised and supervised learning methods.
- Performed API calls on news data to evaluate trends of wildfire and climate mentions.
- Analyzed results of many different machine learning techniques such as linear regression, association rule mining, support vector machines, decision trees, naive bayes classifiers, hierarchical clustering and k-means cluster.

Relevant Coursework

- Machine Learning
- Statistical Learning
- Data Mining
- Bioinspired Robotics
- Mathematical Modeling
- Information Visualizations

Technical Skills

Git	R	AWS	Prediction Modeling
Python	C++	AWS CDK	Classification Modeling
VS Code	SQL	Docker	Instruction and Coaching