J. Alex Hurt, PhD

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SUMMARY

Highly accomplished Data Scientist and AI expert with 8+ years of experience and a strong record of data-driven innovation. With 35+ publications in Machine Learning, HPC, and AI, I possess a proven ability to architect, develop, and deliver cutting-edge Data Science, ML, and HPC solutions to extract maximum value from large-scale, real-world datasets and drive actionable insights. With deep expertise in Data Science, AI/ML, Deep Learning, and High-Performance Computing, I am adept at leading complex data challenges and high-impact initiatives and delivering cutting-edge data solutions for real-world problems.

WORK EXPERIENCE

PRINCIPAL DATA SCIENTIST, Surescripts / 2025-PRESENT

- Responsible for developing and implementing data-driven solutions across various business functions and collaborating with cross-functional teams to analyze complex data sets, derive actionable insights, and drive strategic decision-making
- Duties including data exploration, enriching data to enhance suitability for AI/ML, and applying statistical and machine learning techniques to analyze large datasets and identify patterns using predictive models and deep learning algorithms

ASSISTANT RESEARCH PROFESSOR, University of Missouri / 2022-2025

- Led NSF and DoD funded research efforts in excess of $1.4 million in the ML and HPC domain focused on scaling data-intensive workloads and applying novel ML algorithms to real-world data
- Executed critical roles on over a dozen AI/ML projects, including as Data Architect, Model Developer, and Technical Point of Contact for delivery of applied ML algorithms
- Designed, developed, and maintained custom data pipelines and ML libraries used to perform large-scale experimentation of AI/ML models using novel methods
- Built frameworks to scale and automate ML and other data-intensive workflows using Docker and Kubernetes that are currently utilized by Data Science and ML researchers around the country
- Developed and delivered curriculum for advanced graduate-level Data Science and ML topics including Cloud Computing with GCP and AWS, Supervised Learning, and Computer Vision
- Mentored PhD Candidates in Computer Science, providing guidance and imparting practical knowledge and skills at a variety of technical levels

GRADUATE RESEARCH ASSISTANT, University of Missouri / 2018-2022

- Performed and analyzed suites of experiments for ML applications on Satellite Imagery using frameworks such as PyTorch, Keras, and Tensorflow.
- Architected and developed pipelines for Deep Learning experimentation and led exploratory evaluation of emerging AI/ML methods for Applied ML projects
- Performed data exploration and analysis, ML model selection, and novel model development on a variety of applied AI projects
- Worked as part of a small team to design, implement, and maintain a custom PostgreSQL Database to enable the creation of datasets used for ML Applications while ensuring data quality and integrity

GRADUATE TEACHING ASSISTANT, University of Missouri / 2018-2022

- Developed hands-on curriculum for graduate Data Science courses such as Applied ML, Computer Vision, Advanced Database Analytics, Advanced Statistics, and Advanced Data Analytics
- Assisted instructors in delivering course content, and assisted students via office hours and one-on-one meetings

DATABASE ADMINISTRATOR AND WEBMASTER, University of Missouri / 2016-2017

- Designed, implemented, and maintained MySQL database and web application with no technical assistance for a plant science research laboratory
- Performed all development responsibilities, including requirements elicitation, design, development, UAT, and deployment

SELECTED PUBLICATIONS

Full list of publications available at jalexhurt.com/publications

- Scaling Deep Learning Research with Kubernetes on the NRP Nautilus HyperCluster
  - Automated and scaled training of ML algorithms from wall-clock time of 90 days to under 1 week, including the optimization of over 2B learnable parameters and the processing of over 1.3 TB of data

- Anthropogenic Object Localization: Evaluation of Broad-Area High-Resolution Imagery Scans Using Deep Learning in Overhead Imagery
  - Developed custom data pipeline to detect and post-process large swaths of imagery to search for objects of interest and processed over 50,000 km^2 of imagery consisting of over 11 million images

- Overhead Object Detection with Channel Attention for High-Resolution Multi-Spectral Satellite Imagery and DMP-extracted Shape Features
  - Integrated latest ML techniques (attention) with custom Deep Learning architectures to improve ML algorithm performance in key metrics

SKILLS

Key Skills

- AI/ML
- Data Science
- Deep Learning
- Project Management
- Mentorship
- Data Governance, Privacy Practices, Compliance
- Architecture and Development of Data Pipelines
- Automation and Scaling of Custom ML Pipelines

Technical Skills

- **ML Frameworks:** PyTorch, Sci-Kit Learn, MMDetection, Ultralytics, Keras, Tensorflow
- **Languages:** Python3, SQL/plSQL, C/C++, CUDA
- **Technologies:** Jupyter, VCS (Git/SVN), Docker, CI/CD, Kubernetes, Slurm, Linux, PostgreSQL, Google Cloud, AWS

EDUCATION

Doctor of Philosphy - Computer Science, University of Missouri

- **Dissertation Title:** Increasing Compulsory Shape Bias in Deep Neural Networks with Differential Morphology for Classification and Detection in Remote Sensing Imagery
- Graduate Certificate in AI and ML

Bachelor of Science - Computer Science, University of Missouri

CONTACT

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