Andrew Casey-Clyde

Research Scientist | Data Scientist

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Summary

Ph.D.-trained data scientist with expertise in statistical modeling, predictive analytics, large-scale data processing, and machine learning (ML). 8+ years of experience developing predictive models and optimizing computational pipelines. Strong programming skills in Python. Proven ability to analyze complex, high-dimensional datasets and implement scalable solutions. Passionate about applying modern statistical methods and machine learning techniques to solve real-world problems.

Skills

Programming Languages: Python, SQL, R, Java, C++, C

Data Science & Machine Learning: Predictive Modeling, Bayesian Inference, Deep Learning, Unsupervised Learning

Data Processing: Large-scale Data Processing, Data Pipelines, Statistical Modeling, Optimization

Frameworks & Libraries: NumPy, SciPy, Pandas, Scikit-learn, Keras, TensorFlow, Git, Jupyter, Matplotlib, Seaborn, Unix/Linux

Development & Collaboration: Git, Agile Development, Cross-functional Leadership, Teaching, Mentorship

Experience

Visiting Research Assistant - *Yale University, Department of Physics,* New Haven, CT — Aug. 2023 – Dec. 2024

- Developed hierarchical Bayesian models for multi-modal datasets, improving population-level predictions.
- Led multi-modal predictive analytics project for 100+ scientist collaboration; published results in a top-tier journal.
- Built scalable data pipelines for astrophysical datasets.
- Utilized advanced statistical techniques to extract actionable insights from noisy, real-world data.

Research Assistant - *University of Connecticut, Department of Physics,* Storrs, CT — Aug. 2019 – Dec. 2024

- Enhanced predictive analytics using advanced statistical methods; results published in a high-impact journal.
- Optimized predictive model efficiency by 300×, reducing computational costs significantly.
- Secured $8,000 NASA Space Grant Fellowship for innovative data modeling techniques.

Research Associate - *San Jose State University, Department of Physics & Astronomy,* San Jose, CA — Sep. 2016 – Aug. 2019

- Built convolutional neural network (CNN) pipelines for galaxy classification across large datasets.
- Developed Bayesian analysis techniques for predictive spatial mapping of astronomical datasets.
- Presented research findings to academic and professional audiences.

Software Engineer - *Salient Process, Inc.,* Sacramento, CA — Feb. 2015 – Aug. 2016

- Led development of SPARK UI toolkit, acquired by IBM.
- Introduced Git-based version control for streamlined project management to company workflow.
- Designed and maintained software tools in an agile production environment, improving team productivity and product quality.

Education

Doctorate (Ph.D.), Physics - *University of Connecticut,* Storrs, CT — Dec. 2024

Dissertation: *Multi-messenger Constraints on Supermassive Black Hole Binaries.*

Master of Science (M.S.), Physics - *San Jose State University,* San Jose, CA — Aug. 2019

Coursework in Machine Learning, Statistics, & Deep Learning Methods.

Bachelor of Science (B.S.), Physics - *University of California, Davis,* Davis, CA — Jun. 2014

Selected Projects & Publications

- **Gravitational Signal Analysis:** Led 100+ scientist gravitational-wave data analysis, identifying a potential black hole binary signal.
- **Optimized Predictive Modeling:** Developed Bayesian models to forecast astrophysical populations using diverse inputs.
- **Deep Learning Image Classification:** Designed ML workflows to classify 300,000+ images by leveraging CNNs.
- 18+ peer-reviewed publications, 35+ technical & non-technical presentations on data science and large-scale analytics.