Sean R.B. Bearden Ph.D.

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Data Scientist

Analytical, results-driven professional with substantial experience in developing advanced data-driven solutions and applying statistical methods to analyze complex datasets and drive actionable insights. Proficient in machine learning algorithms and predictive modeling techniques to optimize business strategies. Proven track record of designing and implementing data-driven solutions to improve operational efficiency with strong background in data visualization tools and Scrum methodologies. Innovative and adaptable with a continuous learning mindset to stay abreast of the latest trends in data science. Demonstrated ability to thrive in fast-paced environments and deliver high-quality results under tight deadlines.

Areas of Expertise

- Business Intelligence & Data Science
- Dashboard Development
- Data Visualization
- Scrum & Agile Methodologies
- Mathematical Modeling
- Machine Learning/AI
- Process Improvement & Efficiency
- Cross-functional Collaboration
- Debugging/Auditing

Professional Experience

Chief Analytics Officer and Data Scientist | Valmar Holdings L.L.C. – Buffalo, NY   2020 – 2023

Evaluated underwriting products and designed prototype solutions for optimal fraud detection. Developed various learning algorithms to analyze complex datasets and derive actionable insights for decision-making. Conducted in-depth data mining and statistical analysis to identify patterns, trends, and correlations to drive predictive modeling efforts. Optimized data collection processes and data quality standards to ensure accurate and reliable analysis outcomes. Supervised and monitored data analytics and data science operations while determining new business opportunities based on data.

Key Accomplishments

- Designed and developed a predictive model to anticipate lead volume and achieve lending portfolios' funding goals while incorporating call center metrics, attendance records, expected financing from various sources, and refinancing estimates.
- Contributed to management of a multi-million-dollar investment portfolio in close collaboration with Morgan Stanley while supervising financial tasks and implementing risk management techniques with application of pattern recognition.
- Spearheaded reduction in lead cost-per-funding to record low levels through redesign and implementation of a consolidated underwriting system utilizing integrated decision trees. Accommodated a variety of lending portfolios totaling millions of dollars funded on monthly basis.
- Slashed collection efforts on clients by 50% while maintaining collected revenue levels through development of a data-informed write-off strategy.
- Secured fast-paced promotion by showcasing outstanding performance.

Researcher in Theoretical Physics | University of California San Diego Physics Dept. – San Diego, CA   2016 – 2020

Uncovered essential branching patterns in digital memcomputing devices. Employed self-organizing logic gates utilizing instantons for collective behavior to meet terminal logic requirements. Assumed responsibilities and assisted faculty members in research and creative activities. Aided in development and execution of research projects, including data collection, analysis, and interpretation.

Key Accomplishments

- Researched and developed a cutting-edge memcomputing dynamical system to optimize complex large-scale problems in a third-wave AI project funded by DARPA.
- Enhanced dynamical system to extract model distribution mode of a restricted Boltzmann machine by resolving QUBO issue transformed into MAX-2-SAT challenge.

Key Projects

Underwriting with Decision Trees   2022 – 2023

- Crafted and executed a tailor-made multi-phase decision tree model to streamline loan approval processes.
- Incorporated diverse vendor solutions at each customer assessment stage to boost operational efficiency and reduce costs.

- Ensured adherence to the Fair Credit Reporting Act guidelines throughout the entire process.

Used Vehicle Auction Model 2021 – 2023
- Led development and management of a data-centric online auction bidding system as a Scrum product owner, focusing on forecasting trends in the used vehicle market by analyzing information gathered from various dealer websites.
- Developed personalized bidding strategies to adapt to market dynamics and vehicle conditions while tailoring bid parameters to individual customer preferences to improve the acquisition process and maximize outcomes through strategic optimization.

Stock Market Models 2020 – 2023
- Designed and implemented stock market analysis models using TensorFlow convolutional neural networks to identify patterns while emphasizing high-risk/high-return strategies and utilizing covered-call option contracts to mitigate risks.

Education

Ph.D. in Theoretical Physics (2020) | University of California San Diego – San Diego, CA
M.S. in in Physics (2017) | University of California San Diego – San Diego, CA
B.S. in Physics and Applied Mathematics (2015) | State University of New York at Buffalo – Buffalo, NY

Professional Training & Certifications

Rady School of Management Mini/Micro-MBA | UCSD Extension and Advantage's Leadership and Teamwork Program | UCSD Extension C/C++ Programming Certificate | DataCamp Data Scientist with Python Track | Student Legal Services' Discover the Law Program, UC San Diego

Awards & Accolades

UC President's Dissertation Year Fellowship (2020 – 2021) | National Science Foundation Graduate Research Fellowship (2015 – 2016)) | UCSD UCEM Sloan Scholar Fellowship, Alfred P. Sloan Foundation (2015 – 2016) | Physics Excellence Award, UCSD (2015 – 2016) | Research Fellowship Award, UCSD (2016) | Barry M. Goldwater Scholarship (2014)

Technical Proficiencies

Tools:	TensorFlow	PyTorch	Hugging Face	XGBoost	CatBoost	LightGBM	scikit-learn	OpenAI API (ChatGPT)	AWS	Google Cloud	SQL	Docker	Flask	Jira
Languages:	Python	MATLAB	Mathematica	C/C++

Affiliations

Phi Beta Kappa, National Honor Society for Liberal Arts and Sciences | Sigma Pi Sigma, National Honor Society for Physics Majors

Volunteering

Volunteer Tutor, the Triton Tutor Program, UC San Diego's HDH Wellness and Engagement (2020) | Sloan Scholar Mentor, UC San Diego's University Center for Exemplary Mentoring (2016-2020) | President of the Society of Physics Students, SUNY at Buffalo Chapter (2013 – 2015) | College Ambassador for the Physics and Mathematics Departments, SUNY at Buffalo (2013 – 2014) | Volunteer Physics Tutor, SUNY at Buffalo (2013 – 2015)

Activities

Panelist, PhD Summit Week, UC San Diego (2023 – Present)
Speaker, "Strengthening your online presence", UC San Diego (2021 – Present)
Storyteller, The Story Collider Podcast (2019 – Present)