Jessica Bean

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Senior Data Scientist, Business Analytics, and Researcher

Strategic Data Science Leader with 10+ years of experience translating complex business challenges into scalable analytics and AI/ML solutions. Proven success managing high-performing teams, building predictive models, and deploying production-grade machine learning systems across government, defense, and academic sectors. Adept at defining KPIs, driving cross-functional collaboration, and delivering data products that shape strategic decision-making. Passionate about ethical AI, cloud-native architecture, and mentoring future data leaders.

WORK EXPERIENCE

Naval Sea Systems Command 10/2023 – 09/2025

Senior Data Scientist

- Directed a team to create an NLP + ML pipeline for automated system classification, reducing manual efforts by 70% within 3 months, enhancing forecasting efficiency.
- Developed a multimodal obsolescence prediction model, enhancing lifecycle forecasting and reducing readiness risks by 25% within 6 months, using stochastic optimization techniques.
- Stakeholders lacked actionable insights for strategic decision-making. Built data product strategy + executive-facing dashboards. Drove a 60% increase in stakeholder engagement within 4 months.
- Supply chain shocks threatened mission-critical acquisition programs. Authored AI-driven white paper + executive briefings forecasting disruptions using big data. Influenced resilience planning for multi-billion-dollar defense programs.
- Built executive-facing dashboards and data product strategy, increasing stakeholder engagement by 60%.
- Created instructional materials, visualizations, and dashboards to support learning and decision-making.
- Mentored PhD and undergraduate teams on ML, NLP, and lifecycle forecasting.
- Led cross-functional teams to define KPIs and build executive dashboards, increasing stakeholder engagement by 60%.

Naval Sea Systems Command • 01/2019 - 09/2023

Lead Data Scientist & Researcher

- Created visual analytics and dashboards for readiness planning, crime risk modeling, and strategic decision-making.
- Managed cross-functional teams and mentored junior data scientists.
- Spearheaded transition to decentralized Data Mesh architecture using Azure; accelerated analytics velocity and collaboration.

Naval Undersea Warfare Center Keyport • 01/2019 - 09/2023

Lead Data Scientist

- Centralized data silos prevented collaboration and slowed analytics. Led transition to decentralized Databricks & Data Mesh architecture across distributed centers. Significantly improved data

sharing, accelerating analytics velocity, and enabling collaborative ML.

- Patent data clustering methods lacked accuracy for tech forecasting. Designed
- NLP clustering pipelines with enhanced algorithms. Boosted tech forecasting accuracy by 75% in 6 months, guiding R&D investment.
- Readiness planning requires early warnings of supply chain risk. Created a distributed data sourcing strategy + predictive analytics dashboard. Provided senior leadership with actionable insights, improving fleet readiness strategies.
- Built a web-based research and analytics platform for real-time asset reclamation, saving $10M in 24 hours.
- Designed game theory-based forecasting tools for logistics and engineering systems.
- Translated business needs into scalable analytics solutions across Navy programs.

Naval Sea Systems Command • 06/2017 - 01/2019

Operational Research & Data Analytics

- $100M in obsolete Navy assets at risk of destruction. Built Decision Analytics Platform (DART) for real-time reclamation strategy. Reclaimed $10M in assets within 24 hours; scaled system across Navy programs.
- Program offices lacked analytic rigor for complex logistics/engineering systems. Designed game theory–based workload and obsolescence forecasting tools. Enhanced predictive accuracy and resource allocation across multiple fleets.
- Created interactive dashboards (Tableau/Power BI) for forecasting & what-if analysis. Improved leadership decision-making and reduced cycle times by 30%.
- Led transition to decentralized Data Mesh architecture, improving data sharing and analytics velocity.
- Built predictive analytics dashboards and reporting systems aligned with strategic goals.
- Created partner-facing specifications and documentation for data delivery and reporting.
- Defined success metrics and iterated on report outputs based on stakeholder feedback.
- Built a research analytics platform for real-time asset reclamation, reclaiming $10M in 24 hours.
- Designed game theory-based forecasting tools for workload and obsolescence, and enhanced resource allocation across fleets.
- Created interactive dashboards (Tableau, Power BI) for experimentation and scenario analysis, reducing time for decision-making by 50%.
- Developed and implemented a data-driven approach for acquisition programs, resulting in a 30% increase in operational efficiency through advanced analytics techniques.

EDUCATION

Ph.D. INFORMATION SCIENCES in Data Science

Naval Postgraduate School • 01/2021 - Present

Coursework: Philosophy of Science, Quantitative Research Methods, Qualitative Research Methods, Large-scale Experiment Design, Knowledge Flow Theory, Statistical and Machine Learning, Weekly Seminars, and Quarterly Seminar Presentations to academia.

MASTER'S DATA SCIENCE in Business Analytics

Pennsylvania State University • 01/2018 - 01/2020

Coursework: Foundations of Predictive Analytics, Data Mining, Applied Statistics, Regression Methods, Descriptive, Predictive & Prescriptive Analytics for Business, Implementing Analytics for Business.

BACHELOR'S MARKETING & ECONOMICS in Business Analytics

California State University Fullerton • 08/2012 - 01/2015

Coursework: Principles of Business Intelligence, Data Mining for Managers, Systems Analysis and Decision Science, Principles of Management and Operations, Intermediate Microeconomics, Intermediate Macroeconomics, Statistical Inference for Business Analytics, Probability Theory and Statistics for Business Analytics.

AWARDS & SCHOLARSHIPS

Naval Sea Systems Command Innovation Award • 01/2019

U.S. Patent Pending: Obsolescence Prediction Model for Lifecycle

Forecasting, Multiple Cost Savings Awards for Predictive Analytics

PROJECTS

AI Agent Coach 10/2024 - 03/2025 Naval Sea Systems Command

Built a KPI-driven recommender system for talent-to-task alignment.

NLP Patent Clustering • 10/2022 - 10/2024 Naval Sea Systems Command

Developed semantic clustering for technology forecasting and entity extraction.

Workload Optimization • 07/2019- 12/2019 Naval Sea Systems Command

Developed a dashboard to show managers the amount of work each partner had using Pert analysis, interviews, min/max algorithm, and game theory. The conclusions were that some partners had more work assigned than could performed in a given period, and some partners were handling three months of work each year. Then, I additionally created a workload distribution algorithm to balance the work more evenly.

Obsolescence Forecast Engine, Naval Sea Systems Command

Led cross-university ML teams to predict obsolescence with >85% accuracy. Additionally, developed a technology process with a pending patent.

Patent Data Technology Forecasting

Developed NLP-based clustering to classify emerging technologies. Recommendations shaped future big data + AI adoption strategies.

VOLUNTEERING & LEADERSHIP

Naval Research Enterprise 01/2020 - Present Mentor Summer Interns

Provided education, training, and skills to college interns for a summer project to research cell phone obsolescence, as well as create a process for solutions to unknown or uncertainty in the supply chain.

Hispanic Special Emphasis Program • 07/2017 - 01/2025 Event Coordinator

Planned and collaborated on historical and significant event celebrations for all employees to recognize contributions of the Latino community, including VIP attendees and speakers.

PUBLICATIONS

Washington Post on Naval Science

https://www.washingtonpost.com/news/checkpoint/wp/2015/03/13/elephants-rats-and-dolphins-eight-ways-the-u-s-military-has-used-animals/ (may require subscription)

DoD white papers

Research in INFORMS

Patent Data Technology Forecasting

INFORMS

Developed NLP-based clustering to classify emerging technologies. Recommendations shaped future big data + AI adoption strategies.

SKILLS

Bayesian Statistics, Causal Inference, Data Analysis, Data Ethics, Data Management for all levels of analysis, Data Visualization in Tableau, PowerBI, Gephi for knowledge graphs, Large-Scale Design and Experimentation, Large- Scale Design and Modeling, Microsoft Office, Power Apps, Predictive statistics specializing in finance, marketing, and logistics, Scientific Research, Scientific Writing, Statistics

Core Skills: Agile, Causal Inference, Cloud (Azure, AWS), CRISP- DM, Data Governance, Data Management, Data Mesh, Git, Power BI, Python, R, SQL, Stochastic Optimization, Time Series, Visual Analytics

TECHNICAL SKILLS: Azure, Data Mesh, Forecasting, Git, Knime, Knowledge Graphs, MATLAB, Minitab, ML (scikit-learn, XGBoost), NLP, Optimization (stochastic, linear), Power BI, Predictive Modeling, Project Management, PySpark, Python, R-Programming, SAS, SPSS, SQL, SQL Query, Statistical Inference, Statistical Modeling, Tableau, Time Series Analysis, VBA Macros, Visual Studio

Soft Skills: Attention to detail, Communication skills, Initiative, Inquisitive, Leading a team, Philosophy of Science, Public Speaking, Stakeholder Engagement