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Top Skills

Foundation Models
Captive Insurance
Corporate Finance

Certifications

Exam 1/P Probability Theory
Exam PA: Predictive Analytics
Exam MFE/3F
Exam STAM: Short-Term Actuarial Mathematics
Exam 2/FM Financial Mathematics

Honors-Awards

Undergraduate Honors Student

Publications

Top 7 Mistakes to Avoid on Exam PA (Predictive Analytics)
Using Your Actuarial Experience to Start a Business
Predicting Uncertainty: Prediction Intervals from Gradient Boosting Quantile Regression

Sam Castillo

AI Solutions | Python • AWS • Video Analytics | Math Grad Ready to Deliver

Northampton, Massachusetts, United States

Summary

Entrepreneur with a passion for turning data-driven insights into tangible business outcomes. In 2021, I founded a startup and earned a spot in the Capital Factory Startup Accelerator, an experience that deepened my commitment to innovation and growth. My professional journey includes working in actuarial science at Willis Towers Watson and contributing to AI development at Milliman Intelliscript. With over five years in the corporate sphere and two years as an independent contractor, I bring a versatile and analytical approach to every project. I hold a Bachelor's of Science in Mathematics with honors from UMass Amherst, which laid the foundation for my career in both data analysis and entrepreneurship. Let's connect and explore opportunities to collaborate!

Experience

Integrated Security Consultants Inc

AI Solutions Developer

March 2025 - June 2025 (4 months)

Massachusetts, United States

- Trained LLMs to act as virtual tech guides, automating the step-by-step install process for surveillance cameras and security systems.

Self-employed

Product Developer

June 2024 - August 2024 (3 months)

Massachusetts, United States

- Recipient of AWS Activate Startups program (Tier 1)
- Built UI/UX materials for AI and Machine Learning
- Developed web applications using AWS
- Built YouTube channel from zero to 50,000+ lifetime views through strategic content development and audience engagement
- Developed comprehensive content strategy encompassing video production, SEO optimization, and audience analytics

- Analyzed viewer metrics and engagement data to optimize content performance and channel growth strategies

Expedia Group

Data Analyst

November 2022 - November 2023 (1 year 1 month)

Texas, United States

- Analyzed large-scale travel data related to flight bookings, vacation rentals, hotels, and car rentals, handling data at scale.
- Architected predictive analytics models processing global travel datasets, encompassing flight bookings, hotel reservations, and vacation rentals.
- Accelerated data workflows from 3 days to hours using AI-tuned Python scripts. This enabled real-time data access.
- Explored datasets from 100+ countries with machine learning. Turned raw numbers into strategic insights that shaped where the company invested next.
- Developed AI agents with Python and R, which successfully performed tasks assigned to them, and addressed complex forecasting challenges, utilizing API get requests and scheduled scripts in PowerShell.
- Safeguarded sensitive customer data following international privacy regulations, ensuring strict compliance

PassMyExam LLC

Data Scientist

November 2019 - May 2022 (2 years 7 months)

Texas, United States

- Participated in Capital Factory University sessions—founder-led masterclasses that translate entrepreneurial theory into real-world tactics.
- Completed a selective 12-week accelerator featuring daily workshops on AI, customer discovery, product-market fit, fundraising, and go-to-market strategy.
- Engineered and maintained a cloud-based data platform hosting predictive analytics models.
- Developed Python-based ETL pipelines for data ingestion and transformation.
- Deployed AWS services including S3, Lambda, and EC2 for cost-efficient computing.

- Mentored junior data engineers and led a team of freelancers.

Boehringer Ingelheim

Data Scientist

June 2021 - October 2021 (5 months)

Texas, United States

- Negotiated and executed a high-value C2C partnership delivering integrated software and support services within a 90-day timeframe while positioning the department for sustained growth through strategic enterprise relationships.
- Constructed convolutional neural network (CNN) models in TensorFlow for high-throughput biological data classification in pharmaceutical research applications that accelerated the pharmaceutical discovery timelines by 30%.
- Piloted a study of large-scale genomic datasets for COVID-19 vaccine research, demonstrating expertise in healthcare data applications.
- Developed comprehensive animal health databases enabling empirical analysis for veterinary medicine applications.
- Orchestrated SQL and Python/R for data pipeline engineering, creating clean, structured datasets optimized for machine learning model training.
- Managed large streaming datasets from search analytics, TV metrics, retail sales, and promotions. Supported strategic sales initiatives by identifying key trends in the healthcare sector.

Informatics

Data Scientist

September 2020 - June 2021 (10 months)

Texas Metropolitan Area

- Prepared data for AI/ML Initiatives using Python, improving data quality for advanced analytics.
- Helped a medical team track eating disorder treatment by building a data reporting pipeline using AWS Athena, RDS, Glue, and S3 that turns EHR data into a self-service reporting dashboard.
- Improved database design by refactoring a 600 line SQL script into 50 lines of code using inner joins, subqueries, case when statements, and lookup tables.

Milliman IntelliScript

Data Scientist

January 2019 - April 2020 (1 year 4 months)

Greater Chicago Area

- Trained AI and ML models on large scale data
- Utilized distributed computing to efficiently handle large-scale data processing, optimizing system performance and enabling seamless integration.
- Engineered data pipelines for healthcare datasets containing 10+ million individual records, achieving 13% improvement in predictive model performance through advanced feature engineering.
- Integrated medical datasets using standardized healthcare coding systems (ICD, CPT, DRG), creating AI models for Fortune 500 health care companies.
- Leveraged distributed computing frameworks for processing 200TB healthcare workloads, achieving 50% cost reduction while maintaining data integrity.
- Ensured strict compliance with healthcare data security regulations including HIPAA and GDPR, implementing zero-trust infrastructure protocols.
- Developed privacy-preserving AI algorithms generating anonymized group-level insights while protecting individual patient data confidentiality.

Willis Towers Watson

Actuarial Analyst

February 2018 - January 2019 (1 year)

Greater Boston Area

- Used Rescue, Radar, and Emblem to conduct reserving studies
- Assisted account managers for international airlines & hotels
- Optimized big data framework and reduced costs by 50%
- Subject matter expert on predictive analytics tools
- Designed predictive models for customer behavior analysis serving major healthcare and travel clients, providing financial projections and strategic insights.
- Optimized big data architecture processing on 200TB scale, Reducing operational costs by 50% through distributed computing implementation.
- Coordinated international AI/ML initiatives across multiple countries, delivering pre-trained models requiring client-specific fine-tuning and

customization.

Milliman

Actuarial Intern

October 2017 - January 2018 (4 months)

Greater Boston Area

- Updated reserving analysis for property and casualty insurance companies
- Performed rate-filing reviews for New England carriers
- Captive insurance feasibility studies for firms located in Bermuda

Blue Cross Blue Shield of Massachusetts

Data Science Intern

June 2017 - August 2017 (3 months)

Boston

Participated in research on health insurance plan design using analytics and machine learning

Presented at end-of-internship event about how people with low back pain can reduce the need for surgery

Attended cross-disciplinary mentoring sessions with actuaries and data scientists

University of Massachusetts Amherst

Academic Tutor

September 2016 - May 2017 (9 months)

Amherst, MA

Major in Mathematics

Classes Tutored: Algebra, Calculus, Linear Algebra, Finance, Differential Equations, Astronomy

Part-time peer tutoring (flexible schedule)

Led group discussions (1-4 people) using whiteboards and laptops

Tutored all undergraduate math courses

Education

University of Massachusetts, Amherst

Bachelor's Degree, Mathematics · (2015 - May 2017)