Current Address:
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Nathan Lewis Smith

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BACKGROUND:

Data scientist specializing in machine learning, forecasting, optimization, simulation, and experimentation to solve complex business problems. Experienced building analytical solutions that improve decision making, balance business tradeoffs, and drive measurable business impact.

EDUCATION:

B.S. in Industrial & Systems Engineering From Virginia Tech — Graduation May 2020
Minor in Green Engineering

TECHNICAL SKILLS

SQL, Python, Databricks, scikit-learn, Flask, Git, Julia, Cursor, SciPy

WORK

Staff Data Scientist, EarnIn — **June 2025 - Present**
Senior Data Scientist — **September 2023 – June 2025**
Data Scientist — **December 2022 – September 2023**

- Owned end-to-end credit risk policy for flagship product driving >$1B in originations across >1M active users and >10M credit decisions every month.
- Set and executed long-term credit policy strategy and annual roadmap in partnership with senior leadership
- Led cross-functional initiatives across product, engineering, and CX to implement credit limits, resolve high-priority investigations, and launch policies for new products
- Directed experimentation strategy for risk policy improvements and ML model replacements, designing and evaluating large-scale A/B tests to balance growth, loss, and customer experience
- Built and standardized a discrete-time simulation framework using counterfactual state transitions and calibrated risk dynamics to evaluate policy changes at the user-cycle level; Simulation enabled high fidelity expectation reducing experiment risk while also reducing implementation risk due to it's usage of production code base in an offline setting.
- Developed a constrained optimization framework to set credit limit strategies by explicitly trading off loss, margin, and LTV; enabled reinvestment into acquisition while maintaining portfolio constraints (e.g., loss rate, covenants)
- Owned LTV assumptions used to inform company-wide marketing and acquisition targets and transition much of our portfolio growth model from sheets/pigment to Python to increase calculation visibility, flexibility, granular record keeping, and reduce modeling burden on finance team.
- Led unit economics modeling for new products and features, partnering with product and finance to evaluate scenarios and inform go/no-go decisions
- Contributed to company-wide experimentation standards as a member of the "Experiment Guardian" team, improving testing rigor and consistency across teams

Senior Credit Risk & Forecasting Analyst, Republic Finance — **August 2021 – December 2022**
Credit Risk & Forecasting Analyst — **May 2020 – August 2021**

- Built and maintained automated portfolio forecasting and reporting pipelines, reducing turnaround time by ~95% and eliminating manual errors; enabled scalable scenario analysis (stress, upside/downside)
- Developed and managed delinquency forecasting and allowance models used for monthly financial reporting and planning
- Led end-to-end development of direct mail response models and targeting strategy (800+ features, Random Forest and later LGBM); reduced mailing volume by ~45% while retaining ≥97% of NPV, generating $1M/month in savings. Implemented multi-level monitoring and validation frameworks to ensure model performance and compliance in production
- Using response model, enabled profitable upmarket expansion through improved targeting, driving ~$1M/month in incremental originations in initial rollout
- Served as quantitative SME for legal & compliance in new state expansions; validated loan calculations and built tooling to ensure regulatory adherence, supporting entry into 5+ states
- Developed Python-based solutions to calculate refunds at scale during temporary compliance gaps caused by third-party loan servicing
- Owned risk strategy for new online acquisition channel; defined KPIs, built monitoring frameworks, and implemented decisioning overlays that reduced delinquency rates by ~25%

PROJECTS

Senior Design Capstone: Credit Strategy Impact on Loan Production — **October 2019 – April 2020**
VT ISE Advisory Board High Impact Award, National IISE Capstone Competition Finalists
National CarMax Analytics Showcase Competition – Grad Prize Winner — **March 2020**
Under Grad Research: Simulation – Optimization for Biomass Feedstock Logistics — **September 2018 – May 2019**

Relevant Coursework:

Probabilistic Operations Research; Deterministic Operations Research I & II; Theoretical Statistics; Differential Equations; Statistical Quality Control; Discrete Event Simulation; Alternative Energy Systems; Python; Data Management; C++;