

Quinn Kristian Arnold

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EDUCATION

Bryant University, College of Arts & Sciences

Bachelor of Science

Major: Applied Mathematics & Statistics | Minor: Business Administration

GPA: 3.95 | Honors Program | President's List

Relevant Coursework: Probability, Mathematical Statistics, Linear Algebra, Multivariable Calculus, Differential Equations, Real Analysis, Numerical Methods, Actuarial Probability Theory

Smithfield, RI

Expected December 2026

RESEARCH & TECHNICAL EXPERIENCE

Advanced Analytics Intern

MAPFRE Insurance

Webster, MA

June 2026 - Present

- Contributing to ML model governance through bias assessment, mitigation analysis, reliability review, and production-readiness evaluation using Python, multivariate methods, and AWS SageMaker.
- Developing LLM-assisted image-analysis workflows that compare visual hazard descriptions with inspection reports to surface discrepancies for underwriting review.
- Supporting teamwide adoption of LLM workflows and pipelines through hands-on coding and workflow integration.

Founder & Researcher

GuidePost Technologies LLC

Hebron, CT

April 2026 - Present

- Authored patrol-routing research: across 264 paired Boston conditions, KDE-penalized routes increased retrospective holdout-incident encounters by 26.3 and route coverage by 16.7 percentage points versus shortest-path routes with identical peaks and ordering.
- Built a patrol decision-support platform for fleet coordination, dispatch recovery, and command review.
- Built authenticated, audit-logged workflows for officers and command staff across web, iOS, and Android.

Machine Learning Intern

Rhode Island Novelty

Fall River, MA

June 2025 - August 2025

- Built time-series forecasting models with automated feature engineering and scenario simulation for inventory and revenue planning.
- Built an image-classification pipeline achieving 96-99% accuracy across hierarchical product taxonomies with automated metadata extraction and label inconsistency detection.
- Engineered a semantic-search system using vector embeddings (OpenAI, Gemini APIs) to translate natural-language business queries into executable SQL over product and customer data.

Researcher & Developer

SafeWalk

Smithfield, RI

September 2025 - 2026

- Open-sourced an MIT-licensed iOS system for comparing shortest and risk-weighted routes, backed by SwiftUI, Fastify/FastAPI, igraph, time-binned KDE surfaces, and reproducible public-data pipelines with documented privacy and safety limits.
- Compared KDE, XGBoost, and graph neural networks across multicity route evaluations with strict temporal holdout; KDE achieved at least 50% greater corridor-based holdout-incident avoidance in every city.

SELECTED RESEARCH & PROJECTS

FastCombo — Deep RL for Combinatorial Auctions — Python, PyTorch, PPO, Game Theory

- Collaborating with Bryant faculty and a graduate student on recurrent PPO that maps public histories from partially observed CATS combinatorial auctions directly to prices; reached 92.4% deterministic exact stage-1 clearing, above the published 88% Bayesian Paths result under a different protocol.

Ask Tupper — Hardened Campus Chatbot — Python, PyTorch, QLoRA, vLLM, RoBERTa, RAG

- Fine-tuned Qwen3-32B with QLoRA on a single consumer GPU in 90 minutes; built a six-layer prompt-injection defense pipeline reducing attack success from 20% to 0% across 15 vectors. Custom RoBERTa classifier achieves 95.3% injection recall; hybrid RAG over 530 university documents lifts factual accuracy from 60% to 74%.

RAPTOR Patrol Routing Optimization — Python, GeoPandas, OSMnx, Graph Algorithms

- Submitted an ALENEX 2027 paper on route-audited graph partitioning with integer staffing constraints; evaluated candidate district plans on Providence, Boston, and Seattle street networks.

SKILLS

- Languages:** Python, SQL, Swift, TypeScript, JavaScript, R
- ML & Deep Learning:** PyTorch, PyTorch Geometric, reinforcement learning (PPO), XGBoost, QLoRA, RoBERTa, RAG, model evaluation, bias assessment
- Algorithms & Mathematics:** optimization, probability and statistics, experimental design, statistical learning, graph algorithms, Dijkstra, KDE, Pareto analysis
- Scientific Computing & Tools:** NumPy, SciPy, pandas, GeoPandas, Shapely, OSMnx, H3, Matplotlib, Git, Docker, AWS SageMaker