

Dylan Bago

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Education

Texas A&M University, *Industrial Engineering — Statistics & Math Minor* College Station, TX | May 2029

- **GPA: 3.75/4.0** — **SAT: 1580/1600** — **ACT: 36/36**
- Awarded the **Brown Foundation Scholarship** — **full-ride** merit scholarship for **top 0.01%** incoming STEM students

Relevant Experience

TAMU Operations Research Department, *Research Intern* September 2025–Present

- Fit **Gaussian Process surrogate models** to noisy samples of a black-box multi-objective function; drew **posterior simulations** across a decision-space grid to generate a distribution of plausible **Pareto fronts**
- Formulated and solved a **mixed-integer linear program** (PuLP/CBC) to find a **minimal-area confidence band** covering at least **95%** of simulated Pareto fronts with enforced contiguity constraints
- Automated the full experimental pipeline in Python, running **Monte Carlo** trials across varying noise levels and GP kernel hyperparameters to stress-test band robustness

TAMU Infolab, *Research Assistant* January 2026–Present

- Built **SpokenCRS**, a Python API standardizing heterogeneous **conversational recommendation datasets** (ReDial, Inspired) into a single consistent format
- Eliminated dataset-specific data engineering via **CRSDataFrame/TurnWrapper** abstractions, reducing onboarding time by **~80–90%** across multiple CRS benchmarks
- Designed a unified **turn-level schema** supporting multi-modal metadata (utterances, entities, ratings), enabling plug-and-play compatibility across **3+ CRS model architectures**

Aggie Investment Club Quant Division, *Social Sentiment Algorithm Developer* January 2026–Present

- Scraped Reddit posts across **7 finance subreddits** using **PRAW**; applied **FinBERT** to classify sentiment and merged with **yFinance** price data to engineer a next-day movement target (+1/0/-1)
- Built an end-to-end **sklearn** preprocessing pipeline (**ColumnTransformer** with **StandardScaler**, **OneHotEncoder**, **SimpleImputer**) to featurize numeric and categorical inputs across **3 companies** (TSLA, AAPL, AMZN)
- Benchmarked **5 classifiers** (Logistic Regression, Random Forest, Gradient Boosting, SVM, LightGBM) with **GridSearchCV** hyperparameter tuning to predict stock direction

Awards & Competitions

Harvard Undergraduate Trading Competition, *Quantitative Trading Competitor* March 2026

- Placed **1st/48 teams** in the **Jump Trading** live prediction market, trading **8 derivative contracts** on a real-time **MarioKart 8 Grand Prix** and updating fair values dynamically across **4 races**
- Competed in live trading and market-making cases sponsored by **Optiver** and **HRT**, covering options Greeks, dynamic hedging, and game-theoretic allocation

HackMIT, *Participant & Backend Developer* September 2025

- Selected as **1 of 1,000 students** worldwide for MIT's flagship **24-hour hackathon**; built *Blind Karaoke* (Flask + Next.js) with **Spotify API** playback, **Whisper** transcription, and **WER/F1** lyrics scoring

Projects

Brand Perception & Sentiment Analysis, *Models & Datasets Developer* January 2026–Present

- Built a **hybrid NER pipeline** (spaCy + regex/dictionary rules) extracting brand mentions from news articles, achieving **F1=0.82**; benchmarked latency from **~45ms** (spaCy+Rules) to **0.2ms** (rules-only)
- Engineered a **PostgreSQL** persistence layer with **upsert logic** for brand deduplication, tracking mention frequency, confidence, and character positions across sources
- Implemented an **NLTK** text-cleaning pipeline (URL stripping, stopword removal, lemmatization) and ran **FinBERT** batch inference via **DataLoader** to score article-level sentiment per brand

Skills & Interests

Programming Languages: Java, Python, SQL, R, C++

Technical Skills: L^AT_EX, PyTorch, TensorFlow, Pandas, PuLP, LLMs, NLP, Git, Bloomberg Terminal

Technical Interests: Operations Research, Stochastic Optimization, Deep Learning, Banach Spaces, NER Pipelines