Logan Bell

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Summer 2027 internships | Optimization, statistics, and scientific computing

EDUCATION

Stanford University

Ph.D., Electrical Engineering | Advisor: Stephen P. Boyd — Sep. 2025–Present

M.S., Computational & Mathematical Engineering | GPA: 3.852 — Jun. 2024

B.S., Mathematics | GPA: 3.959 — Jun. 2024

EXPERIENCE

BlackRock AI Labs | Palo Alto, CA

AI Labs Researcher — Jul. 2024–Present

Full-time Jul. 2024–Sep. 2025 and Jun.–Sep. 2026; 10 hrs/week during the academic year.

- Reimplemented HOLA, an asynchronous black-box and hyperparameter optimizer, in Rust with PyO3 Python bindings; built distributed execution, checkpointing, and recovery.
- Researched portfolio P&L under specified factor shocks, including rare events; proposed robustness improvements to the existing scenario model when data did not justify a replacement.
- Built a model to forecast annual operational-event costs in portfolio management, emphasizing aggregate calibration and high-impact events.
- Co-developed the formulation and data pipeline for compensation optimization with fairness and legal constraints; implemented an initial CVXPY model.
- Formulated models for coordinating investment strategies under shared or separate accounting, mapping feasible structures across margin, shorting, and currency constraints; evaluated them in synthetic-strategy backtests.

AI Labs Intern — Jun. 2022–Jan. 2024

- Developed tax-aware bond portfolio optimization with a custom tax-alpha term; built Python/CVXPY/pandas backtests and tax accounting for synthetic and real market data.
- Reduced factor-portfolio risk, improving Sharpe ratios in backtests while maintaining returns.

SELECTED RESEARCH AND SOFTWARE

- **Regression performance attribution.** Developed a Shapley approximation attributing out-of-sample performance to interdependent features, using least-squares structure and sampling to avoid exhaustive subset evaluation. *Statistics and Computing* (2024); Python software.
- **Cooperative portfolio trading.** Co-developed an ADMM protocol for joint portfolio and aggregate transaction-cost optimization without sharing managers' investment objectives. Preprint (2026).
- **Divisor-sum extrema and prime support.** Studying extremal growth of the sum-of-divisors function, prime support of Grönwall-ratio maximizers, and the gap between integer and real-exponent optima. Two manuscripts (2026).
- **Energy systems** (with Stephen Boyd, ongoing). Investigating Shapley allocation of solar-community subsidies and model predictive control for battery price arbitrage.
- **Multivac.** Developing a Python/MCP platform to coordinate AI-assisted research and evaluate results. Experimental alpha.

TEACHING

Stanford EE 364A: Convex Optimization

Co-instructor, Summer 2026 (52 students); Head TA, Winter 2024 (249 students); TA, Winter 2023.