ANDREW CHEN

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EDUCATION

CARNEGIE MELLON UNIVERSITY, TEPPER SCHOOL OF BUSINESS — New York, NY
Master of Science in Computational Finance – MSCF — ***GRE Quant: 169/170*** — 12/24

- Upcoming coursework includes probability, computing & data science, financial products & markets, fixed income

PURDUE UNIVERSITY — West Lafayette, IN
Bachelor of Science in Aeronautical & Astronautical Engineering — ***GPA: 3.75/4.00*** — 5/23

- Purdue Blockchain Cofounder & Research Lead
- Coursework: honors multivariate calculus, probability and statistics, ODEs/PDEs, linear algebra & linear systems theory, control systems analysis, nonlinear/convex optimization, distributed autonomy & control

EXPERIENCE

UNIVERSITY OF NORTH CAROLINA — Charlotte, NC
Bitcoin & Lightning Research Intern — 5/23 – 8/23

- **Graph Algorithm R&D:** Developed graph routing algorithm for Lightning payment channel network, leveraging recent fast Laplacian solvers to find maximum-sparsity/minimum-cost flows
- **Iteratively Reweighted Least Squares:** Adapted current IRLS technique to optimize nonconvex base fees using Huber-loss cost function smoothing, enabling novel base fee-minimization capability not presently found on the Bitcoin network
- **Automation & Evaluation:** Wrote automated Python scripts to test algorithm over random channel graphs (100k edges), demonstrated >10x reduction in transaction fees for payment sizes of 1BTC (~$25,000)

SKYDIO (largest US drone startup) — Redwood City, CA
Autonomy Intern — 5/21 – 8/21

- **Sensor Drift Estimation:** Designed online sensor drift estimator by separating drift factors into directional & undirected and correlating observed drift rates vs. factor measurements across >10TB of historical data
- **Flight Simulator Development:** Added 3D collision physics to in-house flight simulator using signed distance fields [C++], allowing for simulation of previously untestable collision scenarios

DRAPER LABORATORY (R&D firm specializing in spacecraft guidance and control) — Cambridge, MA
Flight Software Intern — 10/20 – 1/21

- **Anomaly Detection & Reporting:** Wrote parallelized anomaly detection tools to validate 2TB of spacecraft telemetry against Monte Carlo simulations, including MATLAB scripts to automate visualization and reporting

NASA – LANGLEY RESEARCH CENTER — Langley, VA
Prototyping Intern — 5/19 – 8/19

- **Telemetry Visualization:** Developed Java program to visualize real-time vehicle telemetry for Orion rocket launch

PROJECTS

PURDUE NEW VENTURE CHALLENGE: BITCOIN-LIGHTNING POINT-OF-SALE — 1/23 – 5/23

- Developed and pitched Bitcoin point-of-sale prototype to investors at Purdue's 2023 New Venture Challenge
- Won $27,000 for "Best Pitch" out of 20 competitors

IMC PROSPERITY TRADING CHALLENGE — 3/23

- Researched, backtested, and implemented Avellaneda-Stoikov market-making strategy in Python, computing reservation price and optimal spread on simulated security; placed top 10% in first of five contest rounds

GRAPH ALGORITHMS FOR BITCOIN & LIGHTNING NETWORK — 10/22 – 12/22

- Devised linearization step for existing Bayesian graph algorithm, enabling usage of fast linear solvers rather than quadratic
- Evaluated algorithm using Python; demonstrated ~5x faster settlement for large Bitcoin payments (~$10,000+)

PROPULSIVE LANDING GUIDANCE — 4/20 – 9/20

- Implemented SpaceX's convex optimization rocket landing guidance algorithm in flight simulator; used open-source C API to expose vehicle state and call second-order cone solver; successfully landed simulated rocket in all feasible cases

ADDITIONAL INFORMATION

- *Languages:* English (native), Chinese (limited working proficiency)
- *Interests:* monetary history, macroeconomics, Bitcoin-native finance, MMA, classical music