

# Souvik Banerjee

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## Experience

### Tudor Investment Corporation

*Quantitative Developer: Macro Pipeline*

*Oakland, CA*

Nov 2024 - Present

- Quantitative research and development supporting low-latency trading strategies and systems.
- Architected and deployed a distributed system to transmit predictive signals across exchanges, credited with unlocking \$10M+ in annual P&L through cross-venue strategy execution.
- Engineered a custom market data ingestion pipeline, streaming compressed packet capture files directly from AWS S3 and eliminating intermediate decompression; reduced annual cloud processing and storage costs by approximately \$250,000.
- Built automated deployment infrastructure for 50+ machine learning models trading futures and spreads.

### Apple

*Senior Software Engineer: Core OS Kernel Technologies*

*Cupertino, CA*

Sep 2019 - Nov 2024

- Directed engineering effort to integrate ARMv9 Memory Tagging Extensions (MTE) into iOS secure kernel and firmware.
- Developed device driver infrastructure for the Apple N1 wireless chip, shipped in iPhone Air.
- Led a team in building core memory, application execution, and device driver subsystems leveraging hardware security primitives, shipped in iOS 17 to >1B devices.
- Architected and delivered new features for third party device drivers on iPad, adding support for custom USB and Thunderbolt devices. Presented at WWDC 2022.
- Designed and implemented core security and stability enhancements for Apple operating systems.

*Software Engineer Intern: Core Kernel*

May 2018 - Aug 2018

- Designed a concurrency bug detection feature using randomized scheduling to identify race conditions in kernel subsystems.

### University of Texas at Austin

*Undergraduate Researcher*

*Austin, TX*

Aug 2017 - Aug 2019

- Analyzed performance and I/O behavior of Linux filesystems. Presented findings at the UT Undergraduate Research Forum.
- Prototyped new blockchain architectures with a focus on network and storage performance.
- Publications:
  - Ponnappalli, Soujanya, Aashaka Shah, **Souvik Banerjee**, Dahlia Malkhi, Amy Tai, Vijay Chidambaram, and Michael Wei. "RainBlock: Faster Transaction Processing in Public Blockchains." In 2021 USENIX Annual Technical Conference (USENIX ATC 21).

*Teaching Assistant*

Aug 2016 - Dec 2017

- Taught CS 439H Operating Systems Honors, CS 429H Computer Architecture Honors, CS 311 Discrete Mathematics.

### Point72: Cubist Systematic Strategies

*Research Analyst Intern: FX Options Trading*

*New York, NY*

Dec 2018

- Improved performance of automated trading systems by requesting quotes in parallel using the FIX protocol.

### Citadel Securities

*Software Engineer Intern: Low Latency*

*Chicago, IL*

Sep 2018 - Nov 2018

- Enabled performance analysis of automated trading systems by creating tools to analyze compiler optimizations.

### Facebook

*Software Engineer Intern: WhatsApp iPhone*

*Menlo Park, CA*

May 2017 - Aug 2017

- Added new features: Switch seamlessly between voice and video calls, notify contacts when changing phone number.

*Software Engineer Intern: WhatsApp VoIP*

May 2016 - Aug 2016

- Improved reliability and deployment speed for WhatsApp's VoIP relay server, reducing upgrade times by 99%.

## Education

### University of Texas at Austin

*B.S. Computer Science Honors, Mathematics*

*May 2019*

GPA: 3.989

- **Turing Scholar, Distinguished College Scholar, University Honors**
- Honors Thesis: Implementing Stateless Clients in Ethereum