

# Souvik Banerjee

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## Experience

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**Apple** Cupertino, CA  
*Software Engineer: Darwin Kernel & Runtime* Sep 2019 - Present

- Advanced platform security and stability by writing frameworks and infrastructure for userspace device drivers.
- Enabled third-party developers to write kernel extensions and drivers for Apple Silicon Macs with new software features and developer outreach.
- Contributor to the XNU kernel, which is at the core of iOS, iPadOS, macOS, tvOS, and watchOS.
- Subject matter expert on IOKit and DriverKit, C++ device driver frameworks for macOS.

*Software Engineer Intern: Core Kernel* May 2018 - Aug 2018

- Experimented with a new randomized thread scheduling policy in the XNU kernel to find concurrency bugs.

**University of Texas at Austin** Austin, TX  
*Undergraduate Researcher* Aug 2017 - Aug 2019

- Introduced fragmented log-structure merge trees in RocksDB to improve write amplification.
- Analyzed I/O behavior of Linux filesystems and presented findings at the UT College of Natural Sciences Undergraduate Research Forum.
- Implemented and analyzed network and storage requirements of stateless clients in Ethereum 1.0.
- Ponnappalli, Soujanya, Aashaka Shah, **Souvik Banerjee**, Dahlia Malkhi, Amy Tai, Vijay Chidambaram, and Michael Wei. "Rain-Block: Faster Transaction Processing in Public Blockchains." In 2021 USENIX Annual Technical Conference (USENIX ATC 21), pp. 333-347. 2021.

*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** New York, NY  
*Research Analyst Intern: FX Options Trading* Dec 2018

- Improved automated trading systems by using Python and the FIX protocol to parallelize quote requests.

**Citadel Securities** Chicago, IL  
*Software Engineer Intern: Low Latency* Sep 2018 - Nov 2018

- Created developer tools for analyzing compiler optimizations and cache misses in order to improve high performance trading systems.

**Facebook** Menlo Park, CA  
*Software Engineer Intern: WhatsApp iPhone* 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

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**University of Texas at Austin** **GPA: 3.989**  
*B.S. Computer Science Honors, Mathematics* May 2019

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

**Colleyville Heritage High School**  
*Valedictorian, National Merit Scholar* May 2015

## Skills & Coursework

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**Languages & Frameworks** C, C++, Swift, Rust, Python, Objective C, Java, JavaScript, React, ARM assembly, x86 assembly  
**CS Courses** Computer Graphics, Artificial Intelligence, Computer Vision, Algorithms, Operating Systems, Programming Languages, Computer Architecture, Data Structures