

NICOLAAS KAASHOEK

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EDUCATION

Princeton University

Princeton, NJ

Ph.D. in Computer Science, GPA: 3.9/4.0

2021 - present (expected completion 2026)

Advised by Wyatt Lloyd

Relevant Courses: Foundations of Probabilistic Modeling, Advanced Computer Networks

Massachusetts Institute of Technology

Cambridge, MA

Master's of Engineering in Computer Science, GPA: 5.0/5.0

2020-2021

Advised by Robert Morris

Massachusetts Institute of Technology

Cambridge, MA

B.S. in Computer Science, GPA: 4.8/5.0

2016-2020

Relevant Courses: 6.828, 6.858, 6.824, 6.857, 6.035, 6.033, 18.404, 6.046

RESEARCH

PhD in Computer Science at Princeton University

Princeton, NJ

Supervised by Wyatt Lloyd (wlloyd@princeton.edu)

September 2021 - Present

- Broadly interested in distributed systems and emerging technologies
- Currently working on a project investigating the use of ZNS storage devices for caching systems
- Starting to investigate the potential ramifications of 5G networks in distributed systems design

MEng in Computer Science at MIT

Cambridge MA

Supervised by Robert Morris (rtm@csail.mit.edu)

September 2020 - May 2021

- Thesis title CheckSync: Transparent Primary-Backup Replication for Go Applications Using Checkpoints.
- Developed checkpointing for multithreaded Golang programs to take efficient checkpoints of their state at any time, and restart them from that checkpoint.
- Periodically synchronizes primary and backup by sending checkpoint deltas.

MIT CSAIL

Cambridge, MA

Undergraduate Researcher under Robert Morris

September 2018 - May 2020

- Designed a new scheme for increased user data privacy by building a decentralized keychain that allows users to encrypt any data they enter on the internet seamlessly.
- Investigated network block storage devices such as Amazon EBS by designing and implementing **m-NBD**, a modified version of Linux NBD that uses multiple remote disks instead of a single one with the aim of providing improved performance and fault tolerance.

PROJECTS - SEE NICKAASHOEK.GITLAB.IO FOR WRITEUPS

- **Wanderlust:** a web application that uses parsed GPX data to provide more accurate hiking trail difficulty ratings and recommendations. Best project award.
- **SEAMS:** an auto-grader designed to fix identified vulnerability in course grading software at MIT.
- **Ouranos:** a peer-to-peer decentralized file system.
- **Compiler:** Compiler for a simple C-like language implemented in Scala. Won first place in 6.035 class competition.

TEACHING

Teaching Assistant,

- TA for 6.S081, an undergraduate level operating systems class at MIT in Fall 2020. Graded, ran office hours, and gave lectures.
- TA for 6.033, an undergraduate systems class at MIT in Spring 2021. Graded, help with exam writing, and ran office hours/recitation.

Lab Assistant,

- Lab assistant for 6.009 under Professor Srinivas Devedas
- Assisted in debugging, ran code checkoffs, and helped with lab design.

EMPLOYMENT EXPERIENCE

Microsoft

Redmond WA

Software Engineering Intern

June - August 2019, June - August 2020

- Worked on Microsoft's Azure Storage team over the course of two separate internships with the Geo Replication team.
- Proposed, prototyped and designed a synchronous geo replication scheme for Azure Storage. Proposed design is still being used and developed for.
- Greatly increased recovery speed after a customer-controlled failover to backup by implementing a checkpoint-verification system to reduce data being copied.

VMware

Palo Alto CA

Software Engineering Intern

June - August 2018

- Worked on Dispatch, VMWare's Serverless framework as part of the xLabs program operating out of the Office of the CTO (github.com/vmware/dispatch)
- Focused on improving scalability of the framework using distributed queuing, lock servers, and a decentralized replication scheme.
- Initiated work porting Dispatch to work on top of Google's Knative framework.

GoDaddy

San Francisco, CA

Software Engineering Intern

June - August 2017

- Performed a variety of programming tasks associated with back-end and infrastructure development in GoDaddy's new product.
- Ran experiments and surveys to verify effectiveness of new offerings for GoDaddy's website builder.
- Helped to integrate third-party software into the machine learning scheme used at GoDaddy.

Samsara

San Francisco, CA

Software Engineering Intern

January - February 2017

- Implemented front-end and back-end to serve videos recorded by a dashboard-mounted camera to a client's page whenever harsh acceleration events were recorded in the vehicle.
- Implemented front-end for clients to allow them to view harsh acceleration events recorded in vehicles.
- Worked with team in the field to correctly install and verify accuracy of dashboard cameras.