

Nick Tehrany

M.Sc. COMPUTER SCIENCE STUDENT

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I am currently a M.Sc. Computer Science Student at the Delft University of Technology with main areas of interest in Storage Systems, Operating Systems, Distributed Systems, and Blockchain Systems.

Education

M.Sc. Computer Science

Delft, The Netherlands

DELFT UNIVERSITY OF TECHNOLOGY

September 2020 - PRESENT

• Thesis - “Design and Implementation of a User-Level File System for ZNS Flash SSD Devices“

Increasing adoption of flash-based storage technology presents significant performance gains over prior storage systems, especially with the introduction of Zoned Namespace (ZNS) Flash SSD that provide superior host-specific data management possibilities. With file systems being one of the most popular ways of data storage, this thesis designs and implements a user-level file system for ZNS SSDs, moving I/O stack out of the Kernel to avoid kernel space overheads and leverage the co-development of device management, file system policies, and application optimizations.

B.Sc. Computer Science

Amsterdam, The Netherlands

VRIJE UNIVERSITEIT AMSTERDAM

September 2017 - August 2020

• Thesis - “Evaluating Performance Characteristics of the PMDK Persistent Memory Software Stack“

The emergence of non-volatile main memories running alongside conventional memory, which are directly accessible by the CPU and provide large capacity of persistent storage, is shifting storage technology in a new direction, triggering numerous changes in the software stack on how we store and access data. This thesis evaluates required software modifications for persistent memory support in file systems, libraries, and tools, and evaluates performance implications of introduced software overheads.

Honors & Awards

Amsterdam Data Science Thesis Award

Amsterdam, The Netherlands

VRIJE UNIVERSITEIT AMSTERDAM

December 2020

- The annual ADS Thesis Award promotes excellence in Data Science and AI from Amsterdam-based knowledge institutes. Received in recognition of my B.Sc. thesis on “Evaluating Performance Characteristics of the PMDK Persistent Memory Software Stack“.

Skills

Programming C/C++, Java, Bash, Python, LaTeX, Solidity, Scala, JavaScript

Frameworks & Tools UNIX, QEMU, fio, perf, ftrace, filebench, PMDK, Docker, Kubernetes, geth, Ganache

Languages English, German

Projects

Study of Zoned Namespace (ZNS) Flash SSD Devices

Vrije Universiteit Amsterdam

ATLARGE RESEARCH

2022

- Analyze the integration options of ZNS SSD into host storage systems, report on their current software support in the Linux Kernel, and benchmark block-level I/O performance of possible I/O scheduler configurations with ZNS SSD.

Framework for Open City Distribution and Supply Chain Management on Ethereum

Delft University of Technology

BLOCKCHAIN ENGINEERING COURSE

2022

- Design and implement a generic framework on Ethereum for decentralized three-sided marketplaces as a solution for city distribution, which removes the dependency on monopolized corporate platforms, allowing for reduction of service fees and providing of services in less populated cities.

Wide Area Adaptive Streaming System

Delft University of Technology

DISTRIBUTED SYSTEMS COURSE

2021

- Implement and benchmark a distributed streaming system with an adaptive scheduler that re-plans and re-deploys query tasks across servers based on performance metrics and solving of an Integer Linear Program for finding optimal task placement.

membench - Benchmarking Memory and File System Performance

Vrije Universiteit Amsterdam

B.Sc. COMPUTER SCIENCE THESIS

2020

- Design and implement micro-benchmarks for measuring the latency of memory accesses through in-memory pointer chasing, measuring and tracing of *mmap* calls for different file systems, and quantifying of page fault overheads.