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EDUCATION

Florida International University

Doctor of Philosophy in Computer Science (CS)

Advisor: Eminent Scholar Chaired Professor Raju Rangaswami.

21 August 2017 - 16 December 2023

Miami, FL

GPA: 3.83/4.0

Florida International University

Master of Science in Computer Science (CS)

Advisor: Eminent Scholar Chaired Professor Raju Rangaswami.

21 August 2017 - 17 December 2022

Miami, FL

Technological University of Havana "José Antonio Echeverría" (CUJAE)

Bachelor of Science in Electronics and Telecommunications Engineering

Faculty of Telecommunications Engineering (FIT).

1 September 2009 - 28 July 2014

Havana, Cuba

GPA: 4.48/5

RESEARCH PROJECTS

Extensible Distributed Storage Systems | Seagate Technology & SyLab (FIU)

August 2021

- Developed TxFuse, a novel architecture using feature plugins to enhance distributed storage systems and reduce code development complexity.

Distributed Caches in Data Centers | SyLab, ModLab, DAMRL (FIU) & HASLab (UMinho)

May 2020

- Developed CaaS, a novel, distributed caching service for cloud storage production workloads that generalized to block, file, object, and KV stores.

Caching Algorithms for Storage Caches | SyLab, BioRG (FIU) & VISA (ASU)

August 2017

- Developed LeCaR and CACHEUS, two novel ML caching algorithm frameworks that achieve higher hit rates for production workloads in the cloud.

EXPERIENCE

Team Leader | Florida International University, FL, USA

August 2018 - December 2023

- Worked on effectively communicating team objectives, generating ideas, defining problems, and developing and implementing plans.
- Reviewed project progress, identified inefficiencies and obstacles, provided feedback, evaluated alternatives, and motivated the team.

Graduate Research Assistant / GAANN Fellowship | Florida International University, FL, USA

August 2017 - December 2023

- Computed metrics to characterize production storage workloads. For a one-week trace of MSR Cambridge, 3.29% of the requests were write operations, and the unique and reuse footprints were 89.24% and 2.22%, respectively.
- Developed machine-learned cache replacement algorithms, LeCaR and CACHEUS, that outperform state-of-the-art caches. LeCaR and CACHEUS hit rates are 93.61% and 94.38%, while LRU and ARC hit rates are 92.38% and 93.17%, respectively, for a sample trace from MSR, Cambridge.
- Developed CaaS, a distributed caching service that caches read and write operations and outperforms an SSD-based local cache commonly deployed in the cloud. The hit rate of CaaS is 96% for a one-day trace from Cloud VPS, outperforming the local cache hit rate of 4%.

Intern | Seagate Technology, California, USA

August 2021 - December 2021

- Worked on testing CORTX's software stack, including cortex-motr, cortex-hare, cortex-ha, and cortex-s3server, to ensure seamless deployment.
- Worked on the File Data Manipulation Interface (FDMI) in CORTX and built feature plugins that implement storage features.
- Completed a performance study on Sage platform Motr x86 cluster with 16 clients and 7 server nodes; each server had three tiers (tier-1, tier-2, and tier-3) that have NVMe, SSD, and HDD storage devices, respectively, and were deployed at the Jülich Supercomputing Center (JSC).

Research Intern | Microsoft Research (MSR), Cambridgeshire, England, UK

January 2020 - March 2020

- Worked as a member of Microsoft's Project Silica team. Specifically, my role involved helping to develop a software stack for a storage system that uses cutting-edge quartz glass technology and tiny "voxels" storing vast amounts of data.
- Developed ML models, including isolation forests and encoders as anomaly detection algorithms. These algorithms can help identify unusual patterns in the data, particularly fine-grained errors within one sector (XY plane) and coarse-grained errors within one track (Z direction).
- Developed ML models that can identify anomalies when tested using real data from the Warner Bros. movie "Superman" written on glass.

Network Engineer | Telecommunications Company (ETECSA)

September 2015 - June 2016

- I maintained uninterrupted, efficient, and secure communication services in the core infrastructure of PSTN, ATM, DSL, VoIP, FTTH, and PON.

Intern | Radiocommunications Company (RadioCuba)

March 2012 - July 2014

- I designed the board layout to modify the Ultra High Frequency (UHF) and Very High Frequency (VHF) communication modules from the Phase Alternate Line (PAL) to the National Television Standard Committee (NTSC) television standards, RF networks, and MATLAB simulations.

HONORS & AWARDS

USENIX Student Travel Award, FAST'18 & FAST'19 & FAST'23.

GAANN Fellowship from the U.S. Department of Education, 2022 and 2023.

CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference Scholarship, 2022.

Grace Hooper Celebration of Women in Computing FIU Scholarship, 2019 and 2022.

Skills & Certifications

CompTIA + Certification Exam

Storage, Cache Algorithms, Distributed Systems, ML, OS.

Python, C#, C, C++, Go, R, R++, TeX.

Visual Basic, High-Level Assembly (HLA)