Liana Valdes

Ph.D. Candidate
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Research Interests

Distributed Systems, Storage Systems, Machine Learning in Systems and Operating Systems

Education

Florida International University — Miami, FL
Ph.D in Computer Science — *Aug. 2017 – Present*
Advisor: Raju Rangaswami — GPA 3.83/4.0

Technological University, CUJAE — Hav, Cuba
BS in Telecommunications and Electronics — *Sep. 2009 – Jun. 2014*
College of Engineering — GPA 3.58/4.0

Research Projects

Cache Replacement Algorithms | Systems Research Laboratory *Sylab* — Aug. 2017 – Present

- Designed and developed novel caching algorithms for a wide variety of production workloads.
- Incorporated new design insights in caching algorithms to reduce the number of writes in SSD caches.

Distributed caching | Systems Research Laboratory *Sylab* — Aug. 2017 – Present

- Designed and developed a new distributed and persistent caching layer for cloud data centers.
- Implement new replication and recovery protocols to ensure fault-tolerance and availability.

Publications & Presentations

Learning Cache Replacement with CACHEUS | Submitted and Under-review
Liana Valdes, Farzana Yusuf, Steven Lyons, Eysler Paz, Raju Rangaswami, Jason Liu, Ming Zhao, Giri Narasimhan

To Cache or Not to Cache | Submitted and Under-review
Steven Lyons, *Liana Valdes*, and Raju Rangaswami

Learning Cache Replacement with CACHEUS | FIU SCIS Research Day — Oct. 2019
3-min lighting presentation and poster

ANX: Caching with Anxiety | FIU SCIS Research Day — Oct. 2019
Poster accepted

Driving Cache Replacement with ML-Based LeCaR | HotStorage'18 — Jul. 2018
Giusseppe Vietri, *Liana V. Rodriguez*, Wendy A. Martinez, Steven Lyons, Jason Liu, Raju Rangaswami, Ming Zhao, and Giri Narasimhan, USENIX Workshop on Hot Topics in Storage and File Systems

Experience

Graduate Research Assistant — Aug. 2017 – Present
Florida International University — *Miami, FL*
Systems Research Laboratory | Sylab

- Developed new caching algorithms for storage caches using Machine Learning techniques to improve performance.
- Analyzed real-world storage workloads to identify patterns that can be exploited by caching algorithms.
- Distributed systems research that addresses challenges such as consistency, availability and fault-tolerance.

Research Intern — Jan. 2020 – Mar. 2020
Microsoft Research — *Cambridge, England, UK*

- Worked as part of Project Silica, a multidisciplinary project that aims to develop from ground up the entire storage stack for a new class of storage system in the cloud data centers that is based on glass.

- My research was focused on using Deep Learning techniques as part of the software pipeline that works on improving data retrieval and the analysis of errors in the system.

Junior Network Engineer Oct. 2014 – Jun. 2015
ETECSA Cuban Telecommunication Company *Hav, Cuba*

- Worked as part of the Operation department that monitors all aspects of ATM, DSLAM, DSL and PSTN network/system infrastructure to ensure high network reliability.
- Performed current network assessment in my district to enable the deployment of OTN devices for the EPON/GPON fiber-to-home project.

Research Intern Mar. 2012 – Jul. 2014
RadioCuba Cuban Radio-communication Company *Hav, Cuba*

- Worked to modify UHF/VHF exciter modules from PAL to NTSC by changing the board layout with 60 dB improvement for the desired frequencies.
- Designed RF matching networks for maximum power transfer to 50-ohm load or antenna modeling results with Matlab and using E-field sensors and spectrum/network analysers.

Awards

USENIX Student Travel Award FAST'19 2019
Grace Hooper Celebration of Women in Computing Scholarship 2019
USENIX Student Travel Award FAST'18 2018

Teaching

Operating Systems Fall 2019
Florida International University *Miami, FL*
Undergraduate Course | Teaching Assistant

Operating Systems Fall 2018
Florida International University *Miami, FL*
Undergraduate Course | Teaching Assistant

Transmission Systems I and II 2011 – 2012
Technological University, CUJAE *Hav, Cuba*
Undergraduate Course | Teaching Assistant

Analog Electronics I and II 2010 – 2011
Technological University, CUJAE *Hav, Cuba*
Undergraduate Course | Teaching Assistant

Societies

Women in Computer Science, WiCS 2019
UPsilon Pi Epsilon, UPE 2019
Google CS First volunteer 2019

Technical Skills

Languages: Python, C#, C/C++, shell, Matlab, LabView, LaTex
Familiar: HTML, Java, JavaScript, MySQL
Developer Tools: Git, VS Code, Visual Studio, PyCharm, Eclipse
Libraries: pandas, NumPy, Matplotlib