Sana Asif

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EDUCATION

Northwestern University
MS IN COMPUTER SCIENCE
Mar 2021 | Evanston, IL, USA
Graduated
CGPA: 3.58 / 4.0

Lahore University of Management Sciences
BS IN COMPUTER SCIENCE
May 2019 | Lahore, Pakistan
Graduated with High Merit
CGPA: 3.49 / 4.0

LINKS

LinkedIn:// **sanaasif22**
Website:// **sanaasif.github.io**
Lab:// **aqualab**
dblp:// **dblp.org/pid/247/6994.html**

SKILLS

Programming
Over 5000 lines:
• Python • C++ • GoLang
Over 2000 lines:
• Java • C • MATLAB • LaTeX
• Haskell • JavaScript
• Assembly • MySQL
Tools:
• LLVM • JupyterNotebook
• Android Studio • Unity
• Docker • Git • Firebase

COURSEWORK

Code Analysis and Transformation
Advanced Programming
Algorithm
Data Structures
Databases
Software Engineering
Machine Learning
(Teaching Assistant, Winter 2021)
Distributed Systems
Computer Networks
Cryptography
Internet Security
Internet Scale Measurement
Network-Centric Programming
Human Computer Interaction
Operating Systems
Discrete Mathematics
(Teaching Assistant, Fall 2017)
Theory of Automata
(Teaching Assistant, Spring 2019)

EXPERIENCE

Graduate Researcher | AquaLab
Sep 2019 - Mar 2021 | Evanston, IL, USA
Led several projects related to Computer Networks and Distributed Systems.

Teaching Assistant | Northwestern University (NU), LUMS
Jan 2021 – Mar 2021 (NU); Sep 2017 – Dec 2017, Jan 2019 - May 2019 (LUMS)
Assisted in preparation of course material and grading of three core CS courses: Machine Learning (NU), Theory of Automata (LUMS), Discrete Mathematics (LUMS)

PROJECTS

Using Content Demand Data to Determine Infection Spread
Year(s): 2021, Programming Language(s): Python
Investigated and analyzed the use of CDN Demand Data to understand the spread of COVID-19. Used cross-correlation analysis to **determine** how social distancing measures impact infection rate. **Identified and eradicated** confounding variables, e.g. population density, by analyzing the data at a fine granularity.

Third Party Service Dependencies and Centralization Globally
Year(s): 2021, Programming Language(s): Python
Determined the reliance of websites on third party infrastructure such as DNS, CA and CDN. **Implemented a code** which used Webdriver capabilities of Selenium Library to **determine** the CDN of top 500 websites, and determine whether it was a third party, using three website heuristics: CNAME, TLD matching, and SOA records.

Implementing QUIC based System for Microservice based Cloud
Year(s): 2021, Programming Language(s): GoLang
Set-up and tested Kubernetes with different protocols including TCP+TLS (default) and QUIC transport protocol. Tested different metrics including TTFB, throughput, page-load time, handshake time. **Integrated and tested** QUIC-go on top of GRPC-go and tested on the metrics by coding for a client and server that uses RPC functions.

Improving Communication over Satellite Connection
Year(s): 2019-2020, Programming Language(s): C, Python
Modified the codebase of pQUIC to accept and transport browser get packets. **Developed a testing framework** that used PhantomJs and Lighthouse to compare TCP-split, TCP, and modified PQUIC on the performance of top Alexa websites.

Designing a Gamified Solution for Second Language Aquisition
Year(s): 2018-2019, Programming Language(s): Python, C, C#, Java
Implemented and tested a gamification framework based on **UX research** and user-centered design methods for the acquisition of Urdu as a second language.

AWARDS

2019-2020	Merit Fellowship	Full tuition and Stipend Support
2018, 2016	Deans Honors List	CGPA > 3.6 in Spring 2018 & Fall 2016

PUBLICATIONS

[1] S. Hassan, A. Hasib, S. Shahid, **Sana Asif**, and A. Khan. Kahaniyan - Designing for Acquisition of Urdu as a Second Language. In *Human-Computer Interaction - INTERACT'19 - 17th IFIP TC 13 International Conference, Cyprus*, 2019.

[2] **Sana Asif** and B. Jun. Leveraging Demand Data as a Proxy for Understanding Large-scale Events. In *CoNEXT'20: Proceedings of the Student Workshop, Barcelona, Spain, December 1, 2020*, pages 25–26. ACM, 2020.