

# Saim Salman

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EDUCATION	<b>Brown University</b> , Providence, Rhode Island <i>PhD in Computer Computer Science, 2017 - Present</i>
	<b>LUMS</b> , Lahore, Pakistan <i>Bachelor of Science, Computer Science, 2013 - 2017</i>
EMPLOYMENT	<b>Google</b> , Sunnyvale, California <i>Software Engineering Intern, June 2019 - August 2019</i>
	Worked on extending Isotope, an open-source bench-marking framework for Istio and developed Tratis, a tool that allows one to model service-mesh based applications and generate configuration files for Isotope to benchmark. Worked closely with Mandar Jog who is part of one of the Istio teams at Google. <i>Manager: Anees Shaikh</i>
PUBLICATIONS	<b>DeepConfig: Automating Data Center Network Topologies Management with Machine Learning</b> <u>Saim Salman</u> , Theophilus Benson, Asim Kadav <i>Workshop on ML for Systems at NIPS 2018, December 8th</i>
	<b>DeepConfig: Automating Data Center Network Topologies Management with Machine Learning</b> <u>Saim Salman</u> , Chris Streiffer, Huan Chen, Theophilus Benson, Asim Kadav <i>Proceeding of ACM SIGCOMM 2018 Workshop on Network Meets AI &amp; ML (NetAI 2018)</i>
	<b>SlickFi: A Service Differentiation Scheme for High-Speed WLANs using Dual Radio APs</b> Kamran Nishat, Farrukh Javed, <u>Saim Salman</u> , Nofel Yaseen, Ans Fida and Ihsan Qazi <i>Proceeding of ACM CoNext 2016, California, USA, Dec 2016</i>
POSTERS & TALKS	<b>Symphony: An Automated Approach to Consistency Requirements Detecting and Orchestrating</b> <u>Saim Salman</u> , Theophilus Benson <i>Poster @ 4th Annual New England Network and Systems Day (NENS17)</i>
RESEARCH EXPERIENCE	<b>Reconfigurable Mesh Networks (Graduate Research Assistant, Brown)</b> Researching on how applying machine learning with mesh networks can help in order to maximize performance by tuning the various configurations available for the developer. <i>Advisor: Theophilus Benson</i>
	<b>Symphony (Graduate Research Assistant, Brown)</b> Researched and came up with a design for a multi-controller SDN system which supports different consistency models for different SDN applications. <i>Advisor: Theophilus Benson</i>
	<b>DeepConfig (Graduate Research Assistant, Brown)</b> Implemented a system which leverages Reinforcement Learning to automatically design (re-configurable) optical data centers. <i>Advisor: Theophilus Benson</i>
	<b>Cyclone (Senior Year Project, LUMS)</b> Implemented a system to thwart side-channel attacks(shared server and network resources) by continuously migrating entire virtual networks over physical networks. <i>Advisor: Fareed Zaffar</i>

**SmarTOR (Networks and Systems Group (NSG), LUMS)**

SmarTOR aims to improve the latency observed by the end user by introducing application awareness to TORs circuit selection. By profiling each users online profile, and geographically mapping the user profile into regions, SmarTOR intelligently picks TOR nodes. Apart from that, we also came up with a unique method to measure circuit health.

*Advisor: Ihsan Ayyub Qazi*

**SlickFi (Networks and Systems Group (NSG), LUMS)**

Designed a service differentiation scheme for high speed WLANs that simultaneously maximises the performance of real-time applications and network throughput. Furthermore, designed various test beds settings to emulate real life scenarios encountered in a WiFi environment and came up with an algorithm to compare video quality.

*Advisor: Ihsan Ayyub Qazi*

**TEACHING  
EXPERIENCE****CS 210: Discrete Mathematics (LUMS)**

*Professor: Imdadullah Khan*

**CS 202: Data Structures (LUMS)**

*Professor: Ihsan Ayyub Qazi*

**CS 471: Computer Networks (LUMS)**

*Professor: Zartash Afzal Uzmi*

**OTHER  
PROJECTS**

**VisitLUMS:** A visitor entry system in Software Engineering Course (LUMS) using Django Framework + AngularJS (Repo)

**C++ Interpreter:** Wrote a C++ interpreter in Python using PLY(Python Lex-Yacc) which handled basic C++ constructs.

**Nachos:** Wrote code to implement scheduling, basic system calls and multiprogramming in NachosOS.

**32-Bit Processor:** Designed and implemented a 32-bit MIPS single cycle processor (in Proteus)

**Chess:** Made a two-player chess game in MATLAB with 3D graphics in Introduction to Programming course.

**Math Visualizer:** Developed a visualization tool in Unity3D for teaching purposes where a user can plot 3D equations and visualize the derivatives and integrals to study different properties.

**TECHNICAL  
SKILLS**

**Programming Languages (In order of expertise):** Python, Golang, C++, Java, C, Haskell

**Other Programming Languages:** P4, Matlab, MySQL, HTML, JavaScript, NodeJS, Bash

**Others:** AWS, Kubernetes, Istio, OpenvSwitch, Emulab, Floodlight, Unity, Proteus,  $\LaTeX$ .

**Hardware:** Arduino