USAMA NASEER

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EDUCATION

Brown University – Providence, RI, U.S.A   August 2017 - Present
- Ph.D. in Computer Science, expected 2022   CGPA–4.0/4.0
- Networks and Systems – Advisor Dr. Theophilus Benson

Duke University – Durham, NC, U.S.A   August 2016 – August 2017
- Completed first year of Ph.D.   CGPA–3.75/4.0
- Advisor Dr. Theophilus Benson
- Transferred to Brown University as of August 2017

Lahore University of Management Sciences – Lahore, Pakistan   May 2016
- B.Sc. in Computer Sciences   CGPA–3.52/4.0

WORK EXPERIENCE

- Research Collaborator (Half-time contractor) at Facebook Boston, MA (September'19-present), in Traffic Infra team.
- Research Intern at Verizon Media (EdgeCast CDN) Los Angeles, CA (June'19-August'19), in CDN Engineering Research team.
- Research Collaborator (Full-time contractor) at Facebook Menlo Park, CA (April'19-June'19) , in Traffic Infra team.
- Research Assistant of Dr. Theophilus Benson (Brown University 2017-present, Duke University 2016-17) and Dr. Fareed Zaffar (LUMS 2015-16)

PUBLICATION/POSTER

- Usama Naseer, Theophilus Benson (Under submission at NSDI 2020)
  Configtron: Tackling network diversity with heterogeneous configurations.
- Usama Naseer, Theophilus Benson
  Configtron: Tackling network diversity with heterogeneous configurations. (position paper)
  Presented paper at the 9th USENIX HotCloud 2017 in Santa Clara, CA.
- Usama Naseer, Theophilus Benson
  InspectorGadget: Inferring Network Protocol Configuration for Web Services.
  Presented poster at IMC 2017 in London, U.K.
  Presented paper at Internet-QoE workshop at ICDCS 2018 in Vienna, Austria.

SELECTED PROJECTS

ConfigTron   Sep 2016–Present
- Improving network performance by reconfiguring network stack (TCP and HTTP) according to the user needs using a data-driven reconfiguration approach.
- ConfigTron infers network conditions faced by user and predicts a set of optimal network stack configurations for the user, using machine learning and statistical techniques.
- Developed a prototype for ConfigTron (kernel module) and carried out controlled and in-the-wild experiments to quantify the benefits of reconfiguring network stack.

Exploiting user heterogeneity to improve latency for CDN Edge   Summer 2019–Present
- As a Research Intern at Verizon Media's EdgeCast CDN, worked on improving latency for small Edge deployments (Nano PoPs).
- Investigated the impact of PoP to PoP traffic on cache at scale and design data-driven policies to optimize latency by prioritizing the latency stricken users.

Mobile Web Performance   May 2018–Present
- Identifying the impact of device characteristics on webpage load and clustering devices on the basis of similarity.
- Investigating the memory usage of web sites and memory bottlenecks when memory is limited (especially for low-end phones). Building a system to mitigate performance memory-related bottlenecks by modifying Javascript.

InspectorGadget   May 2017–Present
- Inferring network protocol configuration (TCP, TLS, HTTP) for web services by live probing and reverse engineering.
- A survey of major web servers and analysis of their current configuration parameters and understanding the implications of these parameters.

Collusion Networks – OAuth 2.0 exploits in Facebook applications   2015–2016
- A study of inorganic activity on Facebook in collaboration with UIowa and LUMS. Exposes the activity of malicious entities that generate fake activity using a system of willing users (collusion networks). Collusion networks exploit Facebook application's read/write permissions to collaborate user activity.
- I, with a team of 2 undergraduates, was responsible for large-scale measurements using honeypots, reverse engineering the architecture of collusion networks and identifying security vulnerability.

Semantic Cleaning of Textual Dataset   Spring 2017
- Identification of duplicates in Quora's Q&A data set.
- Leveraged tools like word2vec and doc2vec to analyze textual semantics for feature extraction and used machine learning strategies (random forests, SVM, neural nets) to detect deduplication in data set.

Visualization of primary school examination results   Summer 2015
- Developed a web application for public high schools' examination results analysis and visualization of schools' data on Google maps in collaboration with Punjab Examination Commission and Center for Governance and Public Management, LUMS (USAID funded).

AWARDS AND DISTINCTIONS
- Placed on Dean's Honor List for years 2012-13, 2013-14, 2014-15.
- Awarded *Silver medal* and *Certificate of Merit* by Board of Intermediate and Secondary Education for 2nd position in Pre-Engineering Higher Secondary Grade exams (out of more than 100,000 students) in 2012.

COURSE WORK AND SKILLS
Programming languages and tools:
Python, Java, C/C++, Tensorflow, Kernel module, Scala with Akka actors, PHP, SQL, Mahimahi, Selenium, MATLAB, AWS, tcpdump, wireshark, raw sockets, gnuplot, latex

Selected course work:
Deep Learning, Kernel programming, Data-driven networking, Software Defined Infrastructure, Distributed Systems, Network-Centric Computing, Advanced Operating Systems, Data Mining, Network Security, Data Cleaning and Integration, Artificial Intelligence, Design Patterns