Muhammad Talha Paracha

Personal Data

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Work Experience

SUMMER 2017

Research Intern at RUTGERS UNIVERSITY, USA
Distributed Algorithms, Computer Networks

Worked under the supervision of Prof. Waheed Bajwa at INSPIRE Lab, Rutgers.

Proposed an efficient distributed average consensus algorithm for packet-switched networks to reduce bandwidth overhead by 25%.

(project technical report @ goo.gl/nJZVni)

SPRING 2017
FALL 2016

Research Intern at TUKL-NUST R&D CENTER
Machine Learning, Computer Vision

Worked on an autonomous vehicle numberplate detection and recognition group project which won 1st prize at SEECS OpenHouse 2017.

Retrained a deep convolutional neural network on a local vehicles dataset using transfer learning. Resulting model was used as a vehicle recognizer in the project.

(more project details @ tukl.seecs.nust.edu.pk)

SUMMER 2016

Open-source Developer at GOOGLE SUMMER OF CODE
Web Development, Applied Cryptography

Built an encryption module for Drupal, the popular open-source software for web development. The module secures a website's data at rest with users' login credentials. Google sponsored all the work via GSoC'16 program.

(more project details @ drupal.org/project/pubkey_encrypt)

Education

2014 - 2018

Bachelors, Software Engineering
National University of Sciences & Technology, Islamabad
CGPA: 3.81 / 4 | Detailed List of Courses

Community Service

FALL 2017

Teaching Assistant at NUST - SEECS

TA for an undergrad Data Structures & Algorithms course taught by Prof. Faisal Shafait.

My responsibilities include grading assignments, conducting help sessions and supervising the end-semester project.

SUMMER 2017

Mentor at GOOGLE SUMMER OF CODE

Mentored two students to complete open-source projects for Drupal via GSoC'17 program.

NOVEMBER 2016

Mentor at GOOGLE CODE-IN

Exposed pre-university students to open-source software development via GCI'16 program.

DECEMBER 2016

Organizer for MLH LOCAL HACK DAY

Organized NUST Hack Day 2016 with the sponsorship of MLH / Github.

Gave a talk on using open-source technologies for web development. Also conducted a bug-fixing workshop for teaching participants how open-source communities work.

(more event details @ nusthackday.com)

Other Projects

JANUARY 2016 *C++*	**Text Compression,** LEMPEL-ZIV ALGORITHM & SUFFIX TREES Built Suffix Trees using Ukkonen's online algorithm and implemented the original Lempel-Ziv algorithm for text compression. Compression of 1 million alphanumeric characters took 13 seconds to complete and resulted in a reduction of around 0.2 million characters.
JANUARY 2015 *C*	**WormGuy,** OPENGL DESKTOP GAME Developed a desktop game based on the classic Nokia snake game using OpenGL for the first programming course in university. The project was ranked #1 among projects of 80 students.
JUNE 2013 *PHP*	**Webtimize.me,** COMPREHENSIVE WEBSITE SEO AUDIT TOOL Developed an online SEO report generator for analyzing 10+ basic but important SEO factors including broken 404 links, missing alternate texts on images, user-friendly URLs, duplicate title tags, GZIP compression and a few others.

Notable Achievements

SEPTEMBER 2015	**Winner,** WOMEN TRANSPORT INNOVATION HACKATHON *Sponsored by UN-Women* Developed an SOS Android app + website for women; features included offline GPS based monitoring & offline cab's numberplate photo sharing/retrieval. (more project details @ talhaparacha.com/canary)
MARCH 2015	**Winner,** SEECS SOCIAL HACKATHON *Sponsored by Telenor* Developed an Android app for entry test preparation based on a crowd-sourcing model. Competed against 50+ senior students from the department as a freshman. (more project details @ talhaparacha.com/entry-test-app)
2015 & 2016	**Recipient,** RECTOR'S APPRECIATION AWARD TO HIGH ACHIEVERS

Other Activities

- **Travel Grant,** DrupalCon Baltimore 2017
- **Travel Grant,** NDSS Symposium 2017
- **Honorable Mention,** ACM ICPC Lahore Regional 2015
- **Bronze Medal,** World CodeSprint 6, Hackerrank
- **Bronze Medal,** EpicCode CodeSprint, Hackerrank
- **Winner,** Quiz Competition, ACM GIKI 16th Softcom

Skills

- C, C++, Python, Java, PHP, MySQL, NoSQL, HTML + CSS, Javascript
- Linux, Git, Travis CI, OpenCV, LaTeX, Wordpress, Drupal, Photoshop

Relevant University Courses

Subject	Grade	Credit Hrs
Distributed Computing	-ongoing-	3+1
Computer Graphics	-ongoing-	3+1
Computer Networks	A	3+1
Computer Architecture	A	3+1
Design & Analysis of Algorithms	A	3
Data Structures & Algorithms	A	3+1
Object Oriented Programming	A	3+1
Fundamentals of Programming	A	3+1
Fundamentals of ICT	A	2+1
Discrete Mathematics	A	3
Calculus-II	A	3
Operating Systems	A	3+1
Web Engineering	A	3+1
Human-computer Interaction	A	3
Software Design & Architecture	A	3+1

Online Courses

Machine Learning*
Digital Image Processing
CS231n: Convolutional Neural Networks
Introduction to Psychology*
Introduction to Philosophy
Theoretical Computer Science

*videos + assignments