Saqib Javed

CONTACT INFORMATION

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EDUCATION

Technical University of Munich (TUM), Germany www.tum.de
M.Sc. Communications Engineering | CGPA: 1.4/1.0 (3rd in class) October, 2017 - Present
- **Thesis :** HW-Friendly Mixed-Quantization N-Networks for Object Detection transcript

National University of Sciences & Technology (NUST), Pakistan www.nust.edu.pk
Bachelor of Electrical Engineering | CGPA: 3.59/4.00 September, 2013 - June, 2017
- **Thesis:** "Obstacle Detection and Avoidance for the Visually Impaired" transcript

PROFESSIONAL EXPERIENCE

TUM | Chair of Integrated Systems, Germany ei.tum.de/en/lis
Research Intern | Deep learning on FPGA April,2020 - Present
- Enhancing framerate of camera by using chess mode of high speed image sensors and feeding the readed data stream into deep neural network for performing pixel interpolation on FPGA.

BMW / TUM | Autonomous Driving Campus, Germany bmwgroup.com
Research Intern | HW/SW Optimization of Convolutional N-Networks July - December, 2019
- Implemented an innovative method to optimize CNNs and reduce power and memory footprint of machine learning models. (paper in progress)

GE-Healthcare, Germany gehealthcare.com
Intern | Software Test Engineering - Automation March - June, 2019
- Software development and testing of GE-Healthcare's product "Seno Iris" which is used for examining images from Mammography.

TUM | Chair of Electronic Design Automation, Germany eda.ei.tum.de
Tutorship | VHDL System Design Laboratory November - July, 2020
- Guided students for two semesters to understand and solve lab tasks in implementing AES encryption algorithm on FPGA. VHDL Lab

Siemens AG | CT RDA IOT SES-DE, Germany new.siemens.com
Research Intern | Deep learning and Model Deployment October - December, 2018
- Implementation of algorithms in the area of machine learning, image processing and distributed systems to automate laser welding process, configurable by Web APIs.
- Supported the implementation of demonstrator for collaborative embedded systems.

Intel | Application debugger., Germany intel.com
Working Student | Softwar Development March - August, 2018
- Development and testing of tools for software developers to support application debugger functions on next-generation company hardware platforms using C and C++.

PUBLICATIONS

J. Kunze, V. Mayer, L. Thiergart, **S. Javed**, P. Scheppe, T. Tran, M. Haug, M. Avezum, B. Bruegge, Eugne C. Ezin. "Towards SWARM: A Smart Water Monitoring System" *IEEE ICPS*, Finland, June 2020 SWARM

INTERNATIONAL EXPERIENCE

Ferienakademie | Autonomous Drones for Sustainability, Italy ferienakademie.de
Summer School September - October, 2019
- Worked under the supervision of Prof. Dr. Bernd Brgge to introduce a smart water monitoring system which is centered around unmanned aerial vehicles (UAVs).

Skills & Competencies

Languages: C/ C++*, Python*, VHDL, C#, Assembly

Libraries: Keras*, Tensorflow*, PyTorch, OpenCV, Numpy*, Scipy, Matplotlib*, Pandas, scikit-learn

Software/Frameworks: Flask, MATLAB/ Simulink*, Unix/ Bash, Docker, Selenium LaTeX*

Version Control: Git **IDEs:** PyCharm* * *denotes higher proficiency*

Languages

English, German, Urdu

Projects

Obstacle Detection and Avoidance for Visually Impaired September, 2016 - June, 2017

- Developed a complete prototype made for Visually impaired people to freely navigate in an indoor environment using sensor fusion technique.
  Thesis Supervisors: Dr. Khawar Khurshid & Dr. Ahmad Salman repository

Semantic Segmentation via Reduced FCNNs October, 2018 - January, 2019

- Casting classification networks (VGG16 & LeNet) into fully convolutional segmentation networks and retraining with 88.01% px-wise cross-val. accuracy & 0.81 IoU (pytorch & MSRC dataset).
- 75% model reduction (500 MB $\rightarrow$ 85 MB) via iterative filter pruning (based on l_1 norm) and retraining with 83.61% px-wise accuracy & 0.74 IoU. repository

Securing MQTT Protocol using AES-GCM February, 2018 - July, 2018

- Implemented AES-GCM encryption algorithm to secure MQTT Protocol Communication between Broker and Subscriber. repository

FPGA Implementation of IDEA Algorithm April, 2018 - June, 2018

- Implementation of IDEA algorithm on the Spartan-3E FPGA using VHDL.

Smart Parking Lot September, 2016 - January, 2017

- Developed a prototype for Smart Parking Lot using AT89C51 Microcontroller. repository

Huffman encoder September, 2014 - January, 2015

- Implemented Huffman encoding algorithm using C++ for Data Structures and Algorithm course project to compress text files. repository

Snake Game February, 2014 - June, 2014

- Developed a Snake game in Object Oriented Programming course using C++ in Microsoft Visual Studio IDE. (Best project in the class) repository

Volunteer Experience & Community Service

NUST-Student Government Association (SGA), NUST-SEECS facebook.com/SEECS.SGA
Head of Events, Sports Society September, 2015 - September, 2016

- Supervised team of 10 people to manage the events for each sports during the whole year.

ACM Mentorship Program, NUST-SEECS www.acm.org/
Project Mentor February, 2017 - June, 2017

- Helped students in Data Structures and Algorithm course and guided them to come up with good project ideas.

Honors & Awards

- *Top 50 candidates*, 9^{th} National Chemistry Talent Contest(NCTC), Pakistan , 2012.
- *76 th/8533 Position*, International KANGAROO Mathematics Contest (IKMC), Pakistan, 2008.
- *2^{nd} Position in Class*, Intermediate (HSSC), IMCB - F-7/3, 2013.
- *Recipient*, NUST Academic Merit Scholarship, 2013 - 2017.
- *Winner*, Federal Board Table Tennis Tournament, Pakistan, 2012.
- *Best player*, BEE-5 Intra-batch Sports Tournament, NUST-SEECS, 2015
- *Captain*, Table Tennis Team, Nust-SEECS, 2016 - 2017
- *Winner*, National Table Tennis Tournament, Fast-Islamabad, Pakistan, 2016 - 2017
- *Champions*, SEECS Futsal League, NUST-SEECS, 2015 - 2016, 2016-2017.