Khadija Hafeez

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Personal Statement

Expert computer scientist with diverse work experience, including research, programming and software development. Research interests spanning from IoT and Blockchain applications. Comfortable discussing technical issues and solutions with scientists and analysts.

Education

Lahore University of Management Sciences(LUMS)	MS-Computer Science	2015-2017	CGPA: 3.33
NUST School of Electrical Engineering and Computer Science	BE. Software Engineering	2010 – 2014	CGPA: 3.51

Publications

- **K Hafeez**, Yasra Chandio, A Bakar, A Ali, AA Syed, TM Jadoon, MH Alizai: "*Inverting HVAC for Energy Efficient Thermal Comfort in Populous Emerging Countries*", ACM International Conference on Systems for Energy-Efficient Built Environments (BuildSys), 2017. Best Paper Award (Audience Choice)

- S Abbas, A Bakar, **K Hafeez**, Yasra Chandio, A Ali, TM Jadoon, MH Alizai: "*Inverted HVAC: Saving the World, One Building at a Time*", at ACM Transaction on Sensor Networks (TOSN)

Experience

Research Associate:

1. *Applications of blockchain* particularly blockchain based PKI for better transparency and security
   - **Model Designing:** Designed system architecture and model for blockchain based PKI (In progress)
   - **Research Analysis:** Surveyed the architecture of legacy PKI and different proposed blockchain based PKI management systems and analysed their approach.

   Blockchain Lab
   Information Technology University(ITU),
   May 2019 – Present

2. *Internet of things* particularly energy efficient smart homes focusing on HVAC like human comfort
   - **Algorithm Development:** Designed and implemented robust algorithms for various platforms. (C,Python)
   - **Data Collection:** Designed cost-eff ective sensing and control platform using sensors, Z-wave based smart plugs, and Raspberry Pi to collect temperature, humidity, and power values inside homes over year long period (C)
   - **Data Visualization:** Used plotly, ggplot2 libraries to plot data to identify behavioural patterns, highlight key findings, and produce publication quality graphs (R)
   - **Technical Writing:** Contributed in writing system design, algorithm, evaluation methodology, and result analysis sections of the research papers accepted at ACM conferences and journals (LaTeX)

   SysNet Lab,
   Lahore University of Management Sciences (LUMS)
   January 2016 – June 2017

Teacher's Assistant

1. Fundamentals of Programming — Spring 2016
2. Object Oriented Programming with C++ — Fall 2013

Software Engineer

I gained Experience working in various phases of software development cycle including documenting, designing using BPMN models to implementing the enterprise systems, integration and creation of tools using cutting edge technologies and tools like Django as backend python framework and AngularJS as frontend. As for the database, I have worked with PostgreSQL and celery with rabbitMQ for Asynchronous Task execution.

Inara Technologies, Isb
2017- 2019

Projects

- **ProofChain:** A blockchain based PKI that's privacy aware and uses X.509 standard TLS certificates for compatibility with state of the art PKI systems. (in progress)
- **Hawadaar:** Retrofitted HVAC system for personalized comfort that provides centralized control abstraction to efficiently air-condition traditional buildings, lacking HVAC, using distributed legacy devices such as heater and AC units.
- **CrowdFeed**: A location-aware context-sensitive crowd sourcing platform to help people utilize their spare time efficiently and enjoyably by performing assigned tasks on their mobile phones and gain some reward, discount or non-monetary benefit in return. The captured context helps context-aware experience sampling from the right person at right place and right time for the benefit of both task performer and task giver.
- **LearnQuran:** An educational web application for providing a better understanding of the morphological and lexical analysis of Quranic Arabic and its various colloquial parts of speech. We used the technique called total physical interaction (TPI) to ensure quick learning of the language in a comprehensive manner. *(**Third Prize** in NUST-SEECS Open House,2014)*
- **Case Study**: Predicting Employee Attrition based on HR Data Analytics
- **DCIM**: An enterprise system to automate the processing of Data Center Access Request using Camunda BPMN Models for model execution, Django for backend and AngularJS for Application UI

Scholastic and Other Achievements

- Audience Choice Best Paper Award at ACM BuildSys'17
- Third position in Final Year Projects Open House at NUST (2014)
- Merit-Based Scholarship in BE-Software Engineering
- Letter of Appreciation on responsible position as a Class Representative (2013)
- Head of IT ACM-SEECS Chapter (2010)

Relevant Courses and certifications

- Big Data Analytics
- Distributed Computing
- Networks Security
- Advanced Algorithms
- Crypto Economics (Blockgeeks)
- Into to Ethereum (Blockgeeks)
- Bitcoin and cryptocurrency technologies (Coursera)

Technical Skills

- OS: Raspbian, Linux
- Tools & frameworks: Django, Ansible, Camunda, Photoshop, Illustrator
- Programming Languages: C/C++, python, R