

# SAMI UL HAQ

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## EXPERIENCE

### Research Assistant

#### Fatima Jinnha Women University

📅 Oct 2018 – Present

📍 Rawalpindi, Pakistan

- Working on implementing NLP applications for novel domains: specifically text classification, summarization, and machine translation primarily using Java and, Python. Also, working on entropy expansion techniques for high quality random number generation using QRNGs, TRNGs and PRNGs.
- Responsibilities also include supervising research team, creating presentations, writing research articles and conducting meetings with clients.

### Software Engineer

#### Pakistan Air Force (PAF)

📅 July 2013 – Sep 2018

📍 Islamabad, Pakistan

- I successfully developed and migrated Command & Control modules of an Air Space Management System from Apple i386 architecture to Intel Xeon. Developed encoding algorithms for real-time communication of primary and secondary Radars. Carried out system integration with Airborne Warning and Control Systems (AWACS) [ZDK-03 & SAAB-2000]. Responsibilities also included managing interviews for software developer applicants with HR team.

## RESEARCH PROJECTS

### 1. "Document Level Neural Machine Translation of Low Resourced Languages"

Project focused on utilizing techniques like Backtranslation, Domain Adaptation and Transfer Learning to improve performance of NMT systems for low-resourced languages.

**Publication:** "Document Level NMT of Low-Resource Languages with Backtranslation." *Proceedings of the Fifth Conference on MT.* 2020

### 2. "Reverse Engineering UML Structural and Behavioural Features from Java Source Code" (Semester Project: Post-Graduation)

Primary project focused on generation of Text-to-Model (T2M) transformation for static and dynamic models extraction. Object oriented constructs were transformed into EMF-UML Activity, Use-Case, Class and, State Machine diagram.

**Publication:** "A Model Driven Reverse Engineering Framework for Generating High Level UML Models from Java Source Code", *IEEE Access*, 2019, Volume 7, Pages 158931 - 158950

### 3. "Model Driven Approach for Modelling and Analysis of Physical Infrastructure Protection" (Thesis: Post-Graduation)

The project involved building Domain Specific Modeling Language for physical security by extending industry standard UML. Annotated UML models then transformed into Bayesian Networks for Quantitative analysis of security configurations.

**Publication:** "A Novel Approach for Modeling Security Aspects of Physical Infrastructures", *International Conference on High Performance Compilation, Computing and Communications (HP3C-2017)*

## EDUCATION

### MS in Software Engineering

#### National University of Sciences and Technology

📅 2014 – 2017

📍 Islamabad, Pakistan

### MSc Information Technology

#### Quaid i Azam University (QAU)

📅 2011 – 2013

📍 Islamabad, Pakistan

### BSc Computer Science

#### Virtual University (VU)

📅 2009 – 2011

📍 Punjab, Pakistan

## SKILLS

**Programming:** Proficient in C, C++, Matlab, Java, Python and LATEX; Capable of C#, SQL

**Toolkits and Frameworks:** Git, PyTorch, TensorFlow, Keras, fairseq, transformers, numpy, pandas, POSIX Threads, Sockets, IBM ALM, Django

## PUBLICATIONS

- "Context-Aware Neural Machine Translation using Selected Context.", Accepted by IBCAST-2022.
- "FJWU participation for the WMT21 Biomedical Translation Task.", *Proceedings of the Sixth Conference on Machine Translation*, pp. 857-862. 2021.
- "Improving Document-Level Neural Machine Translation with Domain Adaptation.", *In Proceedings of the Fourth Workshop on Neural Generation and Translation*, pp. 225-231. 2020
- "Document Level NMT of Low-Resource Languages with Backtranslation." *Proceedings of the Fifth Conference on Machine Translation*, pp. 442-446. 2020.

## AWARDS

- **2011-2013 Academic Scholarship Award**  
Institute of Information Technology, QAU, Pakistan
- **2016 Vice Chancellors Gold Medal**  
Institute of Information Technology, QAU, Pakistan
- **2017 Certificate of Appreciation**  
Pakistan Air Force (PAF), Pakistan