Usama Sadiq

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Personal Statement:

A research engineer with interest & experience in computational engineering & its application in Machine Learning, Computer Vision, Computer Vision Geometry & Geometric Deep Learning to solve challenging real world problems. I always welcome work-related challenges and adopt a systematic approach to solve them with a risk taking mindset.

Professional Experience:

- **Information Technology University of Punjab**
  - **Associate Researcher:** (Current Position) (From Sep-2019 ***to*** Present) (Lahore, Pakistan)
    - Currently, I am working as research associate under the supervision of **Prof. Dr. Rehan Hafiz** @ **Vision Processing** (Vis Pro) **Lab**.
    - I am working as team leader on a project, '*Deep Learning Assisted 3D Image Reconstruction*', in collaboration with *Electronics & Telecommunication Research Institute (ETRI)*, South Korea.
    - I have been working on innovating and improving the different deep learning based modules (e.g. modules for camera localization & unsupervised depth estimation by leveraging the geometric constraints) which can be used to create Sparse and Dense point clouds for subsequent processing in single unified pipeline and replace the conventional pipelines like COLMAP & MESHROOM.
  - **Graduate Student Fellow:** (From Sep-2018 ***to*** Aug-2019) (Lahore, Pakistan)
    - I secured Graduated Student Fellowship @ Information Technology University during my MS studies in 2018. Being a graduate student fellow, I was entrusted with following responsibilities:
      - **Research Assistant:**
        - I worked as research assistant under the supervision of **Dr. Waseem Abbas** (now Assistant Professor @ Vanderbilt University, USA) in **Networks & Intelligent Systems Lab.** I worked on problems related to Networked control systems e.g. Resilient Consensus in Multi-agent Systems and Distributed Estimations etc**.**
      - **Teaching Assistant**
        - **Fall 2018:** During Fall 2018 semester, I worked as teaching assistant to an undergraduate course, 'Electronic Circuit Design'. I also managed a semester project exhibition in which students worked on basic electronics projects.
        - **Spring 2019:** During Spring 2019, I co-taught an Object Oriented Programming course to undergraduates. I also assisted the lab instructor in lab sessions and conducted a programming hackathon.

- **FAST, National University of Computer & Emerging Sciences (NUCES)**

  - **Lab Engineer** (From June-2018 ***to*** Aug-2018)
    (Faisalabad, Pakistan)
    - I also worked as Lab Engineer @ FAST, NUCES. I supervised the Control Systems Lab. I supervised numerous lab sessions for undergraduate students during summer semester.

Education:

- **Information Technology University of Punjab:** (From Sep-2018 ***to*** Dec-2020)
  Master of Science in Electrical Engineering

  - CGPA: 3.83/4.00 (Expected)
  - Thesis: Robust Local Image Feature Extraction & Correspondence Estimation
  - Advisor: Prof. Dr. Rehan Hafiz
  - Affiliation: Vision Processing (Vis Pro) Lab
  - Graduate Level Courses: Machine Learning, Computer Vision, Advanced Mathematics for Machine Learning, Advanced Digital Signal Processing etc.

- **University of Engineering & Technology Lahore** (From Oct - 2013 ***to*** May - 2017)
  Bachelor of Science in Electrical Engineering

  - CGPA: 3.43/4.00
  - Thesis Project: Mathematical Modelling & Control System Design for Quad Rotor

Technical Skills & Expertise:

- **Theoretical:**
  - Machine Learning, Deep Learning, Computer Vision, Advanced Digital Signal Processing
  - Special Topics in Computer Vision e.g. 3D Image Reconstruction**,** Multi-view Geometry in CV
  - Advanced Mathematics for Machine Learning
  - Graph Theoretic Methods in Machine Learning

- **Practical**:
  - Excellent coding & computing skills with **Python** and **MAT LAB**.
  - Good understanding of concepts of **Object Oriented Programming** & **program designing**.
  - Good experience with implementing, training, testing & debugging Machine Learning algorithms.
  - Excellent working experience with training, testing & debugging **CNNs** in **Pytorch**.
  - Good experience of **developing** & **integrating deep learning pipelines** for **computer vision** tasks.
  - Good working experience with **machine learning** & **deep learning libraries** like
    - Pytorch, Keras, Numpy, Scipy, Scikit-learn, Open CV, PIL etc.
  - Introductory knowledge of **Tensor flow** & **JAX**.
  - Good working experience of using GPUs to scale & speed up deep learning computations.
  - Working experience of single and multi-GPU systems like **GTX- 1080 Ti** & **RTX-2080 Ti**.
  - Working experience with **Docker** containers & images
  - Good working experience on **Linux** (Ubuntu 16.04).
  - Good working experience of scientific documentation with **LaTex**.

Publications:

- **Under Review:**
  - *Learning to detect Local Features using Information Change*. Youngju Cho, Muhammad Faisal, **Usama Sadiq**, Tabashir Arif, Rehan Hafiz, Jeongil Seo, Mohsen Ali, IEEE Access, 2020.

Awards & Honors:

- **Graduate Student Fellowship @ ITU, Lahore** (Awarded in: Sep-2018)
  - Secured Graduate Student Fellowship @ Information Technology University of Punjab during MS studies based on academic performance.

- **Graduate Assistantship in MS APPLIED MATHEMATICS @ GIKI** (Awarded in: January-2018)
  - Secured honorary Graduate Assistantship for getting highest marks in entrance test of MS Engineering Sciences at Ghulam Ishaq khan Institute (GIKI) and also secured admission in fully funded MS Applied Mathematics program.

Interpersonal Skills:

- Good Research and Effective Communication Skills
- Teamwork Spirit
- Good Analytical Skills

References:

- Further references & details will be furnished upon request.