ASHISH JAISWAL

Ph.D. Student in Computer Science

@ ashiz2013@gmail.com 682-433-6518 https://linkedin.com/in/asheeshcric https://github.com/asheeshcric

EXPERIENCE

Graduate Research/Teaching Assistant

CSE, University of Texas at Arlington

August 2019 – Present Arlington, TX, USA

- Built pre-processing pipelines to analyze visual data for understanding cognitive fatigue in people (images, videos, fMRI)
- Developed a multi-modal fusion algorithm to recognize Human Activities from RGB videos for cognitive analysis in children
- Assistant Lecturer for courses: HCI (6369), C, JAVA, and Linux

Scientific Applications Programmer

SocialEyes NP

April 2019 – July 2019 Kathmandu, Nepal

- Optimized a deep learning model to detect diseases from retinal images targeting macular-degeneration with 89 % accuracy to predict mild to severe diabetic retinopathy

Software Engineer

Insight Workshop (Python Team)

Dec 2017 – May 2019 Kathmandu, Nepal

- Developed web applications in Django and Angular
- Implemented security and cloud solutions with AWS Services (EC2, RDS, S3, Lambda, CloudWatch)
- Incorporated machine learning algorithms in web applications
- Worked on IoT projects related to health monitoring system
- Developed custom python packages and libraries

EDUCATION

Ph.D. in Computer Science

University of Texas at Arlington

Aug 2019 – May 2023 (Expected)

Bachelors in Electronics & Comm. Engineering

Kathmandu Engineering College, Tribhuvan University

Nov 2014 – Sep 2018

PUBLICATIONS

- Understanding Cognitive Fatigue from fMRI Scans with Self-supervised Learning. *arXiv preprint arXiv:2106.15009*., 2021
- A Survey on Contrastive Self-supervised Learning. *Technologies*, *9*(1), p.2., 2021.
- A Multi-modal System to Assess Cognition in Children from their Physical Movements. In *Proceedings of the 2020 International Conference on Multimodal Interaction*, 2020.
- Self-Supervised Human Activity Recognition by Augmenting Generative Adversarial Networks. In *the 14th PErvasive Technologies Related to Assistive Environments Conference*, 2021.

HONORS & AWARDS

- **Doctoral Consortium Award**, PETRA, Corfu, Greece, 2021
- **Graduate L3/Harris Award**, UTA Innovation Day, 2020
- **AI Scholar** in 2018 - FuseMachines, Nepal
- Awarded as an **AI-fellow** (top-25) in 2017 - (MicroMasters in AI, Columbia University, EdX)

TECHNICAL SKILLS

- **Languages/OS**: Python, JavaScript, C, Bash, Linux, SQL, HTML, CSS
- **Libraries/Frameworks**: PyTorch, Keras, TensorFlow, Numpy, Pandas, Matplotlib, Scikit-learn, Django, Flask, Angular

PROJECTS

Cognitive Fatigue Analysis with fMRI data

- Built a semi-supervised model that predicts different levels of cognitive fatigue in subjects with/out Traumatic Brain Injury (TBI) using their fMRI scans (with 86% accuracy).

Cognitive Assessment in Children with Action Recognition

- Built a multi-modal network that utilizes body-keypoints, object detection, and optical flow for activity recognition to assess cognition in children by analyzing their executive functions through multiple standardized physical tasks

Dynamic Gesture Recognition for Game-based Wrist Rehabilitation

- Implemented an algorithm to remove background from images for real-time dynamic hand gestures aided for rehabilitation of people with wrist injuries

Mobile Autonomous Retinal Evaluation (MARVIN)

- Built a deep learning retinal evaluation system that grades diabetic retinopathy from retinal images (89% accuracy)

KrishiSathi

- Implemented RandomForest algorithm on IoT data to analyze crops and their daily growth

BP & Heart Rate Monitoring System

- Built REST APIs and front-end designs for a health analyst web application (Angular SPA & Django REST) powered by an IoT Blood Pressure device and machine learning

WCMS for a Juice Sales Enterprise

- Developed a data-analysis web application to manage, monitor, and visualize sales in a commercial enterprise