ASHISH JAISWAL

Ph.D. Candidate in Computer Science

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EXPERIENCE

Software Engineer, Machine Learning Intern

META (Audio Video Understanding Team)

May 2022 – August 2022 Menlo Park, CA, USA

- Built a system that visualizes the current popular trends going on in REELS videos uploaded on Facebook and Instagram
- Unsupervised Clustering of videos, NLP to assign topics to clusters generated, UI Dashboard, and Search Indexing API for video search based on topics generated.

Graduate Research/Teaching Assistant

CSE, University of Texas at Arlington

August 2019 – Present Arlington, TX, USA

- Self-supervised representation learning from multi-modal vision data (images, fMRI, LiDAR)
- Developed a multi-modal fusion algorithm to recognize Human Activities from RGB videos for cognitive analysis in children
- Assistant Lecturer for HCI (6369) course and previously TA for C, JAVA, and Linux courses

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

EDUCATION

Ph.D. in Computer Science

University of Texas at Arlington

Aug 2019 – Dec 2023

Bachelors in Electronics & Comm. Engineering

Kathmandu Engineering College, Tribhuvan University

Nov 2014 – Sep 2018

PUBLICATIONS (LINK)

- A Smart Sensor Suit (SSS) to Assess Cognitive and Physical Fatigue with Machine Learning *International Conference on Human-Computer Interaction* , 2023
- Detecting Cognitive Fatigue in Subjects with Traumatic Brain Injury from fMRI Scans using Self-supervised Learning. In *the 16th PErvasive Technologies Related to Assistive Environments Conference*, 2023
- 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.

HONORS & AWARDS

- **Session Chair**, HCII 2023, Denmark
- **Doctoral Consortium Award and Workshop Organizer**, PETRA 2022/23, Greece
- **Graduate L3/Harris Award 2020**, UTA Innovation Day
- **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 and built a DL model 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 Sales Enterprise

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