ASHISH JAISWAL

Ph.D. Student in Computer Science

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EXPERIENCE

Graduate Teaching/Research Assistant

CSE, University of Texas at Arlington

August 2019 – Present Arlington, TX, USA

- Research in computer vision and machine learning involving medical brain imaging for cognitive fatigue analysis
- Human activity recognition from RGB videos for cognitive analysis in children
- Teaching Assistant for programming courses: C, JAVA, Linux

Scientific Applications Programmer

SocialEyes NP

April 2019 – July 2019 Kathmandu, Nepal

- Researched & implemented deep learning and computer vision techniques to detect diseases from retinal images targeting macular-degeneration

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 / COURSES

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 *he 14th PErvasive Technologies Related to Assistive Environments Conference*, 2021.

HONORS & AWARDS

- **Dcotoral 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 cognitive fatigue level of a subject with Traumatic Brain Injury (TBI) from brain fMRI scans.

Cognitive Assessment in Children with Action Recognition

- An end-to-end system that assesses cognition in children by analyzing their executive functions through a camera sensor
- Built a multi-modal deep learning model with body-keypoints extraction, object detection, and optical flow for activity recognition

Dynamic Gesture Recognition for Game-based Wrist Rehabilitation

- Designed a deep learning model to detect real-time dynamic gestures to control a character in the game that helps in rehabilitation of subjects with wrist injury

Mobile Autonomous Retinal Evaluation (MARVIN)

- Worked on building a deep learning retinal evaluation system that grades diabetic retinopathy from retinal images

KrishiSathi

- A web portal for farmers integrated with Machine Learning and IoT to analyze crops and their growth daily

BP & Heart Rate Monitoring System

- 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