List of Topics for Undergraduate Thesis/Projects

Dr. Chowdhury Mofijur Rahman

1. Learning rules of soil composition for better harvest of different crops/fruits/vegetables
2. Fake note detection
3. Emotion detection using facial expression
4. Clustering of documents based on semantic similarity
5. Finding the context based meaning of words
6. Solving optimization problem using evolutionary algorithm
7. Experiments with local search algorithm
8. Knowledge discovery by mining UIU student data
9. Machine translation from English to Bangla
10. Juktaakkhar prediction by association mining of Bangla words

Dr. Hasan Sarwar

1. Development of Bangla OCR
2. Application of AI in Medical Data
3. Software Engineering Issues - Success/Failure rate analysis with reasons
4. Development of Mobile Applications
5. Development of Web Applications using .NET MVC / ASP.NET framework
6. Software Testing (In practice)

Dr. Muhammad Nurul Huda

1. Speech Recognition
2. Speech Synthesis
3. Algorithms
4. Speech Processing
5. Machine Translation
6. Bengli Phonetics
7. Machine Learning
8. Natural Language Processing (POS identification, UNL Expression,........)
9. Artificial Intelligence

Dr. Khondaker A. Mamun

Human Machine Interface (HMI)/ Human Computer Interface (HCI)

Development of Digital Augmentative and Alternative communication Tools for nonverbal kids

Design, Development and Usability analysis of a Smart Cane for persons with Visual Impairments
Tongue Movement Ear Pressure signals for developing assistive HMI/HCI
Design and Development of a Smart Wheel-Chair to redefine independent mobility for Disables
Investigation of ATM System Accessibility for People with Visual Impairments in Bangladesh
Investigation to open up a new world of opportunities for disabled people with refurbished computers
Technology to enhance communication and education of disable children
Evaluation of Bangla Speech to Sign Language Translation System
Tongue Movement Ear Pressure signal for developing automatic voice recognizer/generator
Tongue Movement Accelerometer signals for developing assistive HMI/HCI
Investigation of signal processing and pattern classification algorithm to improve HMI/HCI performance

**Brain Machine Interface (BMI)**

Brain Machine Interface Research in Developing Countries: Opportunities and Challenges
Deep brain local field potential (LFP) signals for developing smart/demand driven deep brain stimulation (DBS)
Investigation of signal processing and pattern classification algorithm to improve the performance of DBS/BMI
Algorithm for developing Transcranial Doppler Ultrasonography based BMI.
Algorithm for developing EEE based BMI.
Algorithm for developing LFP based BMI.

**Medical Intervention**

Development of a mobile (smart-phone or tablet) based interactive and automated tool for screening autism

Development of a mobile (smart-phone or tablet) based interactive and automated tool for identifying developmental delay
Design and development of Action-based Exergames for Rehabilitation of Children with Cerebral Palsy

Cloud Based Framework for Parkinson’s Disease Diagnosis and Monitoring System for Remote Healthcare Applications

CMED : *Cloud based Medical System for Rural Health Monitoring in Developing Countries*

A Wearable Fetal Movement Monitor for Prenatal Care in LIC Community Medicine

Algorithm for improving automatic Dysphagia detection

sEMG based Myoguide MAP for diagnosing lower back pain (LBP)

Smart phone based Glucose meter

Application of smart device (phone /tablet) for health monitoring and/or management

Squeeze Machine: A tool for reducing Anxiety for Children with ASD

**Higher Education**

1. Analysis of world university ranking systems

2. Integration of Web Technology for Evaluating Quality Matrices in Higher Education

3. Investigation to Evaluate Quality Metrics for Higher Education in Bangladesh

4. Development of a generic university ranking system

5. Technology enhancement / integration in the education system to improve learning environment.

6. Impact analysis of distance learning in developing countries.

**Biometric & Biomarker**

Handwriting for Biometric Authentication

Physiological signal identification for biomarker

Pattern recognition of physiological changes related to activity engagement

**Smart System for Lifestyle (IoT)**

Smart Phone Applications for Health Monitoring and Lifestyle Management
Smart Home Systems for Digital Lifestyle
Smart Home Automation System: The Future, Applications and Challenges
Creating Opportunities for Disabilities using mobile technology

**Intelligent System for Business Productivity**

Intelligent Systems for efficient service delivery
Promoting Self-employment of Persons with Physical Disabilities through Information Technology (IT)
Development of automatic vehicle Tracking, Security and Management system
Intelligent Property Management System for increasing productivity
BDRider: A smart vehicle sharing and tracking system (mobile and web based application)

Development of Smart Sales tracking and management system

**Dr. Salekul Islam**

1. Content processing at the Edge Cloud
2. Secure multicast in Software-Defined Networking (SDN)
3. Remote healthcare services through mobile Cloud computing
4. Developing a security framework for Mobile banking systems
5. Cryptanalysis of existing RFID/WSN security protocols using industry scale tools
6. Study and deployment of network management tools
7. Analysis of Content Delivery Network (CDN) through OMNET++ simulation model

**Dr. Swakkhar Shatabda**

1. Study of Deep Learning Networks
2. Study of Problems and Algorithms in Bioinformatics
3. Heuristic Algorithms to solve Multi-Objective Optimization Problems
4. Design and Development of Computer Games (Project)

**Mr. Suman Ahmed**

*Thesis:*
1. Study and Implementation of different approaches of Machine Translations
2. AI implementations in applied projects (Data Mining and AI approaches)

*Projects:*
1. Development of Online Accommodation System for UIU students
2. Development of Online Blood Donation Management System for UIU students
3. Developing an Online Solution for Event Management Company
4. Developing an Online HR Recruitment Process
5. Developing an Online Leave Management System or Apps
6. Proposed Effective IT Enable Automated Class Room Education System (for School/College of Bangladesh) and different Apps
7. E-Commerce Site Development for any Prospective Market
8. Implementation of VoIP Management System (including billing)
9. Apps for Intelligent product and place wise searching
10. Implementation of a Digital Repository system
11. Any project idea which will be required for students skill development to fit in the industry

Mr. Mohammad Mamun Elahi

1. Study of issues and challenges towards optimal Wireless LAN (Wi-Fi) Performance
2. Design and deployment of IPv6
3. Collaborative neighbor discovery in Wireless Sensor Networks
4. Using Internet of Things for Smart Home
5. Using Internet of Things for E-health Monitoring
6. Network penetration testing using Kali Linux
7. Network performance analysis using OPNET
8. Policy-based firewall for secured Enterprise Network
9. Server-based Authentication for a secured Enterprise Network
10. Implement firewall technologies to secure the network perimeter
11. Design and implementation of a Virtual Private Network (VPN)

Mr. Abu Shafin Mohammad Mahdee Jameel

1. "What's in the picture? Natural language descriptions from images": The goal is to develop an algorithm to generate human-readable natural language captions from images.
2. "Automated sports highlights": The goal is to take sports videos and create a summary video containing main events.
3. "Detection of trends in CCTV footage": The goal is to take CCTV footage from a single or multiple sources and find trends there, which can be used to detect anomalous events.
4. Development of an autonomous unmanned air vehicle: The goal is to develop an autonomous drone.
5. Low cost zing bails for cricket matches: The goal is to develop bails that light up when dislodged (Current implementations cost ~40000 BDT)

Mr. Nasif Muslim

1. Air pollution disperse monitoring system design

Mr. Md Mofijul Islam

Project Topics:

1. Development of a Mobile Application for Dyslexia patient detection.
2. Development of a Mobile Application for Smart Tourism.
3. Development of a Mobile Application for Intelligent Transportation.
5. Intelligent medical service system
7. Smart Applications:
8. Future Internet, Smart City, Smart Health, Smart Home, Smart Office
9. Application using various service publicly available on IBM WATSON, Details list of WATSON services: http://goo.gl/Y6Vz5P
10. Application for Healthcare
11. E-commerce, e-wellness, e-agriculture, e-childcare, and e-parking
12. Internet of things based application

Thesis Topics:
1. Internet of Things (IoT)
2. System design for Internet of Things(IoT)
3. e-health, e-wellness, e-agriculture, e-childcare, and e-parking
4. Intelligent Transportation Systems (ITS) and Smart City Era
5. Smart City applications
6. Home and building automation
7. Data management in IoT
8. Security, privacy, and system integrity for Internet of Things
9. Mobile Cloud Computing
10. System design for Mobile Cloud Computing
11. Social and crowd computing
12. Context-aware services
13. Participatory and Opportunistic Sensing
14. Big data visualization
15. Big Data in Mobile Cloud Computing
16. Virtualized and cloud-oriented resources for big data processing