

# NILAMBAR HALDER TONMOY

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## EDUCATION

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- **United International University** Dhaka, Bangladesh  
*Bachelor in Computer Science and Engineering; GPA: 3.77* Oct 2016 - September 2020
  - **Courses:** Artificial Intelligence, Machine Learning, Pattern Recognition, Theory of Computing, Computer Architecture, Data Structure, Algorithm

## PROFESSIONAL EXPERIENCE

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- **Renforce** Sydney, Australia  
*Machine Learning Engineer* December 2021- Present
  - **Text Cluster Detector & Classifier:** Identify text cluster from a random pdf document. Our job was to identify and categorize the text cluster, essentially the category is for the unstructured data to be of a structured format mapped to the system data schema
  - **Rule Recognition:** Rule is a set of text that defines a particular motive in a text. This unique object is set by the client system which follows a pattern. For our approach to prepare a solution that will identify inherited rule, we have created an appropriate dataset and prepared a POS frequency table for each record of the dataset. The frequency table is then fed to the model for training.
  - **Metadata Extraction:** Detect, classify and extract different named entity which is based on clients metadata dictionary.
- **Graaho** Reston, VA, USA  
*Software Engineer* October 2020- Present
  - **Qesfera Credit Risk Modelling:** Researched and developed a credit risk model for financial enterprise. Prepared an interactive dataset visualiser, analyser, prediction analyser and reporting functionalities.
  - **Komidaz Recommendation Engine:** Komidaz is a food delivery application of Graaho Limited. For this platform we have researched on user interaction of food purchase and developed a recommendation engine for the user to easily suggest interesting restaurant and cuisine based on users profile or interaction.
  - **Interactive Annotation Tool For Restaurant Menu Extraction:** Researched various restaurant menu structure and developed an automated menu extractor and mapper for Komidaz system. We have designed an interactive annotation tool for internal user to extract the menu item of restaurants and structure the data according to Khaodao system.

## RESEARCH EXPERIENCE

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- **Smart Parking Management:** Research and develop system architecture for parking space detection, allocation and automatic management. We developed classifier model to extract vehicle and parking space information
- **Face Expression Recognition:** We have prepared a headshot dataset collating both human and animated faces of different expressions. Then we trained a neural network classifier model to evaluate our dataset. We achieved a good performance in a controlled environment
- **Time Series Analysis of Covid-19 Cases:** With the widespread of the covid-19 virus and its affects on the situation we have prepared a time series analysis of covid-19 cases and prepared a module to predict probably covid-19 cases for a specific time period. We also prepared a predicting algorithm to analyse the durability of the pandemic.

- **Bangla Sign Language Detection:** We have prepared a dataset of 7 different hand sign of bangla words as it was no such dataset for bangla word is present at the moment. We compared between various computer vision model to evaluate our dataset and tested on a random sample outside controlled environment to evaluate our model.
- **Smart Heart Disease Detection:** Researched and developed a smart heart disease predictor tool that will predict early heart disease and notify the user with detailed information and causes

## ACADEMIC PROJECTS

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- **Gesture Controlled Garbage Collector:** We have developed a hand gesture controlled robot that is purposed for collecting small objects from remote area. The bot is designed using Arduino Uno, Bluetooth module, flex sensor and servo motor to operate the claw
- **Transport Management System Using Real Time Coordinates:** Developed a management system using “Google” maps to control, manage and operate local transport along with real time tracking functionality. The solution is derived from decentralized management system.
- **Smart Gardening:** Developed a smart gardening system with automating watering and shed system. Our system detects the room temperature and humidity along with sun availability and manages the garden accordingly.

## PUBLICATIONS

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- **2021 IEEE Region 10 Symposium (TENSYP)** MI Iqbal, MI Leon, **NH Tonmoy**, J Islam, A Ghosh Deep Learning based Smart Parking For A Metropolitan Area
- **IEEE Kolkata Section CALCON 2022** **NH Tonmoy**, M Reza, N. Ahmed, M Uddin, M Afridi, S Tanaz Generating Human Admissible Language From Bangla Sign Language Using Image Processing In Review
- Real Time Accident Detection and Cause Analysis In Preparation

## TEACHING EXPERIENCE

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- **United International University**  
*Undergraduate Assistant* February 2019 - June 2019
- **United International University**  
*Grader* February 2018 - January 2019
- **Private Tutoring**  
*High School Level* January 2016 - November 2020

## PRIZES AND PARTICIPATIONS

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- Inter University Project Showcase 1st
- Inter University Programming Contest - Individual 3rd
- Robi Datathon - 22
- Recieved 100% merit scholarship on tuition fee for consecutive trimester at UIU

## EXTRA CURRICULAR ACTIVITIES

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- Executive, Software Wing, Robotics Club of UIU
- Arranged “Electronics Project Showcase” at UIU