

Department of Instrumentation and Control Engineering
National Institute of Technology Tiruchirappalli
Tiruchirappalli-15.

**CALL FOR PAID
INTERNSHIP
SUMMER 2022**

Applications are invited from Third year ICE/CSE students of NITT for undergoing internship in the Department of Instrumentation and Control Engineering, to work in the following two projects.

Project 1: Predictive Analytics for detecting onset of Diabetes

Project Description

Diabetes is one of the most prevalent and swiftly growing diseases that have affected millions of people around the world. Statistical studies conducted on diabetes have warned that the proportion of people affected by diabetes will reach 25% of the total population of the world by 2030. Numerous techniques have been developed till now for prediction of diabetes. Research carried out till now have succeeded in developing machine learning models for prediction of the types of diabetes based on existing datasets.

The proposed work aims to design a predictive deep learning (DL) light weight model for early prediction of the onset of Type 1 (or Type 2) Diabetes. The predominant physiological features will first be given as an input to individual deep learning model using Multi View DL model for feature extraction and LSTM model for prediction. The predicted model will then be validated finally with data collected from a hospital.

Project 2: Photoplethysmography-based Non-invasive Glucose Monitoring (Prototype) System

Project Description

Diabetes, the condition of having excessive or uncontrolled glucose in the blood, is one of the leading causes of human mortality. People with this condition have all been well versed with the painful finger pricking that is required for measuring blood glucose with a glucometer. Recently, research has proved the usage of Photoplethysmography (PPG) signal for monitoring blood glucose in a non-invasive way.

The proposed work aims to develop fingertip PPG device and to use the same for measuring blood glucose level (BGL). To measure blood glucose from PPG signal, a few discriminative and related features are extracted from the obtained PPG signals and Machine learning algorithms need to be employed to predict the actual value of BGL from the extracted features. The proposed algorithm and system should predict the BGL level with a level of clinical accuracy and has to be validated and compared with the state of the art methods.

Start date of internship: 1st June, 2022.

Duration: **1st June to 31st July 2022** (Selected students are expected to do literature survey and understand the objective before the start date, stipend of Rs.5000 will be paid for two months).

Number of interns required: 2-3

Interested students can send their resume mentioning the project number to guma@nitt.edu before **28th of February 2022**.