



Title – A 5 days' workshop : A Summer School on Recent Trends in Computational Intelligence and Internet of Things

Day – 05 (25th June, 2021)

Organized by: Computer intelligence society (IEEE CIS) & EED PDEU

Total number of Participant (IEEE/Non-IEEE) – 25+

Date of Event: 21st to 25th June, 2021

Venue of Event: Online Microsoft Teams

Volunteers:

1. Miss Miracle Rindani (AU)
2. Miss Aanshi Patwari (AU)
3. Mr. Manavkumar Vagrecha (AU)
4. Miss Bhavya Pandya (PDEU)

Description:

A five days summer school on Recent Trends in Computational Intelligence and Internet of Things. The workshop flyer and the registration link was generated and floated in the third week of May 2021. The organizing chair are Dr. Siddharth Joshi from Pandit Deendayal Energy University, Gandhinagar, Gujarat, India. The eminent personalities from IEEE CIS Gujarat chapter are Dr. Mehul Raval, Chair IEEE CIS, Dr. Maulin Joshi, Vice chair IEEE CIS and Dr. Pratik Shah, IEEE CIS were also a part of the workshop. The volunteers are Miss Miracle Rindani, Miss Aanshi Patwari & Mr. Manavkumar Vagrecha from Ahmedabad University and Miss Bhavya Pandya from PDEU.

The fifth day of summer school was coordinated by Mr. Manavkumar Vagrecha. As for the other days, there were three sessions planned for the 5th day of the summer school. The first session, on Time series data analysis using machine learning (ML) approach, was conducted by Dr. Kantipudi Prasad from Symbiosis Institute of Technology. Sir gave us an insight on time series data and it's examples. He focused on various analyzing methods for the time series data using various tools and techniques.

The second session was conducted by Prof. Anand Chauhan majorly focused on AI and IoT: Step Ahead in future. He has given several advantages and usages of IoT in today's world. He explained how to integrate the 2 major fields, Artificial Intelligence and Internet of Things and where their amalgamation would be helpful.

He discussed various sectors where their combination can solve major hurdles of the future. He gave some brief information about networking and cloud related concepts helpful in the connectivity of hardware and software.

The third session was conducted by Dr. Parveez Faruki. He demonstrated majorly on Intrusion Detection and Prevention for IoT Systems using Machine Learning. He showed many possible intrusions and attacks in the IoT systems. He then explained about the prevention and detection methods for the described intrusions. He also described in brief about his research papers related to the intrusion detection : “[Network Intrusion Detection for IoT Security Based on Learning Techniques](#)”

Event Photographs –

Some moments of Day 5

- Session 1 :

The screenshot shows a Microsoft Teams meeting interface. The main window displays a presentation slide titled "Process/Flow". The slide content describes a dataset preparation process for experiments conducted with subjects under age 18 to 50 years. The data is captured from a smartphone with tri-axial acceleration and angular velocity sensors at 50Hz. The data is then partitioned into training (70%) and testing (30%) sets.

Process/Flow

The dataset was prepared with the experiments conducted with the various subjects under age between 18 to 50 years. In this, each subject was assigned to perform multiple physical activities, holding a smartphone configured with an accelerometer, proximity, and gyroscope sensors. The sensor data are captured and stored with tri-axial acceleration and angular velocity at a frequency rate of 50Hz. The recorded time-series data were prepared considering different patterns of movement activities and labeled manually in different sets of classes. Also, the data in the dataset are portioned into two different sets with a ratio of 70% for training operation, and 30% data are chosen for performing a testing operation for the validation.

The bottom of the screen shows the Teams interface with a list of participants: Prasad Kantipudi, vadherv dhruv (Guest), and AithaModi (Guest). The right sidebar shows a list of people, including Manav Vagreacha, Anu Lohachab (Guest), Divyani patel (Guest), PATEL KULDEEPKUMAR BIPL..., Salomi Solanki (Guest), Saumya Joshi (Guest), sushan bhojak (Guest), vadherv dhruv (Guest), Vishakha Gor (Guest), and others.

The screenshot shows a Microsoft Teams meeting interface. The main window displays a presentation slide titled "Various Approaches". The slide lists two cases for finding or creating a data set for learning or experimentation purposes. Case-01 involves finding an appropriate data set, and Case-02 involves creating a time series data set out of existing data that is not stored in an explicitly time-oriented form. The slide also includes two text boxes providing detailed instructions for each case.

Various Approaches

- Finding an appropriate data set for learning or experimentation purposes (Case-01)
- Creating a time series data set out of existing data that is not stored in an explicitly time-oriented form (Case-02)

In the first case, you should find existing data sets with known benchmarks so you can see whether you are doing your analysis correctly. These are most often found as contest data sets (such as Kaggle) or repository data sets. In these cases, you will likely need to clean your data for a specific purpose even if some preliminary work has been done for you.

In the second case, you should think about effective ways to identify interesting timestamped data, turn it into a series, clean it, and align it with other timestamped data to make interesting time series data.

The bottom of the screen shows the Teams interface with a list of participants: Prasad Kantipudi, vadherv dhruv (Guest), and Siddharth Joshi (Guest). The right sidebar shows a list of people, including Manav Vagreacha, Anu Lohachab (Guest), Divyani patel (Guest), Salomi Solanki (Guest), sushan bhojak (Guest), vadherv dhruv (Guest), Vishakha Gor (Guest), and others.

- Session 2 :



Recording has started. This meeting is being recorded. By joining, you are giving consent for this meeting to be recorded. [Privacy policy](#) Dismiss

IoT CLOUD PLATFORM

An IoT Cloud Platform typically operates on a cloud infrastructure (e.g. OpenShift, AWS, Microsoft Azure, Cloud Foundry) or inside an enterprise data center.

- 1.Connectivity and Message Routing** – IoT platforms need to be able to interact with very large numbers of devices and gateways using different protocols and data formats, but then normalize it to allow for easy integration into the rest of the enterprise.
- 2.Device Management and Device Registry** – a central registry to identify the devices/gateways running in an IoT solution and the ability to provision new software updates and manage the devices.
- 3.Data Management and Storage** – a scalable data store that supports the volume and variety of IoT data.
- 4.Event Management, Analytics & UI** – scalable event processing capabilities, ability to consolidate and analyze data, and to create reports, graphs, and dashboards.
- 5.Application Enablement** – ability to create reports, graphs, dashboards, ... and to use API for application integration.

01:22:07

Anand Chauhan (Guest)

People

Invite someone Share invite

Presenters (9)

Attendees (6)

- Manav Vagreacha
- Anu Lohachab (Guest)
- PATEL KULDEEPKUMAR BIPI...
- Saumya Joshi (Guest)
- vadher dhruv (Guest)
- Vishakha Gor (Guest)

Invite others from conversation (2)

- aanshipatwari
- Pruthvish Rajput

BhavyaPandya DrashtiParmar Anand Chauhan (Guest)

- Session 3 :

