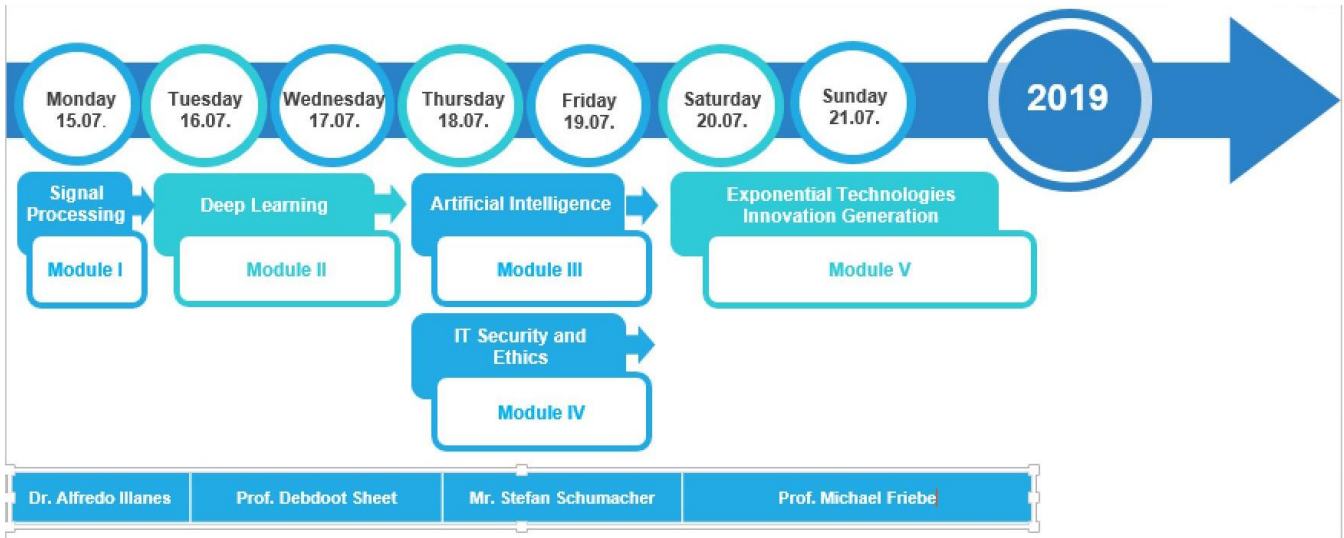


Summer School Program



Monday, 15.07.2019

Module 1: Biomedical Signal Processing – Dr. Alfredo Illanes

Requirements: Basics of Signal Processing

Matlab Programming

Personal Laptop

Program:

9:00 – 10:00: Introduction to signal acquisition and processing

10:00 – 10:15: Coffee break

10:15 – 12:15: Practical acquisition of signals from different processes

12:15 – 13:00: Lunch Break (Mensa)

13:00 – 14:30: A “Cookbook” for signal processing and analysis

14:30 – 14:45: Coffee break

14:45 – 17:00: Hands-on Signal Processing (Practical session)

Tuesday, 16.07.2019

Module 2(A): Deep Learning - Prof. Debdoot Sheet

Requirements: Basics of programming (Matlab, Python, etc.)

Personal Laptop

Program:

- 9:00 – 10:00: Artificial Intelligence from age of Heuristics to Deep Learning
- 10:00 – 10:15: Coffee Break
- 10:15 – 12:15: Multilayer perceptron
- 12:15 – 13:00: Lunch break (Mensa)
- 13:00 – 14:30: Training your first Neural Network- Part 1 (Practical session)
- 14:30 – 14:45: Coffee Break
- 14:45 – 17:00: Training your first Neural Network- Part 2 (Practical session)

Wednesday, 17.07.2019

Module 2(B): Deep Learning - Prof. Debdoot Sheet

Program:

- 9:00 – 10:00: Introduction to Convolutional Neural Networks
- 10:00 – 10:15: Coffee break
- 10:15 – 12:15: Convolutional Neural Networks –Part 1 (Practical Session)
- 12:15 – 13:00: Lunch Break (Mensa)
- 13:00 – 14:30: Convolutional Neural Networks –Part 2 (Practical Session)
- 14:30 – 14:45: Coffee break
- 14:45 – 17:00: Convolutional Neural Networks –Part 3 (Practical Session- self learning)

Thursday, 18.07.2019

Module 3(A): Artificial Intelligence – Prof. Debdoot Sheet & Module 4 (A): IT Security and Ethics – Mr. Stefan Schumacher

Requirements: Basics of programming (Matlab, Python, etc.)

Basics of health information security

Personal Laptop

Program:

- 9:00 – 10:00: IT Security, Data Protection and Ethics in eHealth (Mod 4)
- 10:00 – 10:15: Coffee break
- 10:15 – 12:15: Learning methods from Distortion Loss based to Perception Loss-Part 1 (Mod 3)
- 12:15 – 13:00: Lunch Break (Mensa)

13:00 – 14:00: Learning methods from Distortion Loss based to Perception Loss-Part 2 (Mod 3)

14:00 – 15:00: How hackers attack- Common vulnerabilities in software and hardware (Mod 4)

15:00 – 15:15: Coffee break

15:15 – 17:00: Cryptography to the rescue (Mod 4)

Friday, 19.07.2019

Module 3(B): Artificial Intelligence - Prof. Debdoot Sheet & Module 4 (A): IT Security and Ethics – Mr. Stefan Schumacher

Program:

9:00 – 10:00: Blockchain – A solution to a non-existent problem? (Mod 4)

10:00 – 10:15: Coffee break

10:15 – 12:15: Basics of video analytics with Deep Learning and AI (Mod 3)

12:15 – 13:00: Lunch Break (Mensa)

13:00 – 14:30: Video analytics with Deep Learning and AI- Part 1 (Practical Session) (Mod 3)

14:30 – 14:45: Coffee break

14:45 – 16:00: Video analytics with Deep Learning and AI- Part 2 (Practical Session) (Mod 3)

16:00 – 17:00: Secure coding – Best practices and standards (Mod 4)

Saturday, 20.07.2019

Module 5(A): Exponential Technologies & Innovation Generation – Prof. Michael Friebe

Requirements: Basic knowledge of Value Proposition Canvas

Basic knowledge of Innovation Generation

Program:

9:00 – 10:00: What is Innovation? Why do we need Innovation?

10:00 – 10:15: Coffee break

10:15 – 12:15: Understanding Healthcare Issues and Collecting unmet clinical needs and ideas-Part 1 (Practical Session)

12:15 – 13:00: Lunch Break (Mensa)

13:00 – 14:30: Collecting unmet clinical needs and ideas-Part 2 (Practical Session)

14:30 – 14:45: Coffee break

14:45 – 16:00: Define Problem areas and find initial solutions (Ideas).

16:00 onwards: Social event

Sunday, 21.07.2019

Module 5(B): Exponential Technologies & Innovation Generation – Prof. Michael Friebe

Program:

9:00 – 10:00: Future trends and Exponential Technologies

10:00 – 10:15: Coffee break

10:15 – 12:15: Validate Ideas and foresee future developments (continuation of previous day) (Practical Session)

12:15 – 13:00: Lunch Break (Mensa)

13:00 – 14:30: Innovation Techniques for improving Ideas

14:30 – 14:45: Coffee break

14:45 – 17:00: Validate markets, Creating Minimal Viable Prototypes and implementing solutions (Practical Session)