

# Introduction of SEU International Summer Seminar Program

## Theme

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**2021 The 2<sup>nd</sup> International Summer Workshop on intelligent sensing, Southeast University**

## Overview

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In response to the increasing demand for international talents in measurement and control technology and instrument majors and electrical related majors, this project aims to train Chinese students as well as international students, undergraduates as well as graduate students in the related area. The program will invite well-known professors from world-class universities to carry out English courses. The project invites professors from overseas universities to give lectures in the following three subject courses: Artificial Intelligence and Challenges in Machine Learning and Data Sciences, AI-Based Applications in Control Systems, Matlab Programming for Data Science in Smart Sensing. Participants will get credits for similar courses such as Pattern Recognition, Control techniques and systems and matlab programming and its applications.

The theme of this program is intelligent sensing. The courses intend to start from the perspectives of sensor physics principles, sensor system design, and intelligent processing of sensor data for applications such as biomedicine, and select appropriate model cases in the cutting-edge direction of instrument science, data science and computer science.

## Schedule (Draft)

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### Artificial Intelligence and Challenges in Machine Learning and Data Sciences

Time	Topic
Aug 19 8:30am~11:30am	Artificial Intelligence outline
	Machine learning
Aug 20 8:30am~11:30am	Supervised Learning (SL)
	No-Supervised Learning (NSL)
Aug 23 8:30am~11:30am	SL-Decision Tree
	SL-Bayesian Network
Aug 24 8:30am~11:30am	SL-Neural Network
	SL-Support Vector Machine
Aug 25 8:30am~11:30am	Discussion on for linear and non-Linear Data
	NSL and SL: Clustering
Aug 26 8:30am~11:30am	K-means
	DBSCAN, C-Means

Aug 27	Data mining, Streaming
8:30am~11:30am	Semi Supervised Learning
Aug 31	Deep learning
8:30am~11:30am	Discussion and Examinations.

Platform for online class: Tencent Meeting

Contact: liyuwen@seu.edu.cn

### AI-Based Applications in Control Systems

Time	Topic
Aug 2	Introduction – part 1.
14:00pm~17:30pm	Introduction – part 2.
Aug 5	Swarm intelligence – part 1
14:00pm~17:30pm	Swarm intelligence – part 2
Aug 9	Introduction to reinforcement learning - part 1
14:00pm~17:30pm	Introduction to reinforcement learning - part 2
Aug 12	Flight control using reinforcement learning - part 1
14:00pm~17:30pm	Flight control using reinforcement learning - part 2
Aug 16	Perception - part 1
14:00pm~17:30pm	Perception - part 2
Aug 19	Perception - part 3
14:00pm~17:30pm	Perception - part 4
Aug 23	Decision making based on game theory - part 1
14:00pm~17:30pm	Decision making based on game theory - part 2
Aug 26	Decision making based on game theory - part 3
14:00pm~17:30pm	Decision making based on game theory - part 4

Platform for online class: Tencent Meeting

Contact: lifengzhu@seu.edu.cn

### Matlab Programming for Data Science in Smart Sensing

Time	Topic
July 5	Basics of MATLAB Application
14:00pm~17:30pm	Basics of MATLAB Application
July 7	Graphics Plotting – part 1
14:00pm~17:30pm	Graphics – part 2
July 9	Graphics – part 3
14:00pm~17:30pm	Graphics – part 4
July 12	Linear equations – part 1
14:00pm~17:30pm	Linear equations – part 2
July 14	Curve fitting and interpolation – part 1
14:00pm~17:30pm	Curve fitting and interpolation – part 2

July 16	DSP Applications -part 1
14:00pm~17:30pm	DSP Applications -part 2
July 19	Simulink toolbox - part 1
14:00pm~17:30pm	Simulink toolbox - part 2

Platform for online class: Tencent Meeting

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## **Number of Participants**

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150

## **Application Requirements**

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Sophomore or Junior students majoring in measurement and control or related areas. Applicants should be familiar with English. The prerequisites include programming, calculus, linear algebra, statistics and automated control.

## **Application Deadline**

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June.15th, 2021

## **Host & Organizer**

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School of Instrument Science and Engineering, Southeast University

## **Contact Information**

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