

One-Week GIAN Course on

SOCIAL SIGNAL PROCESSING

24th January 2022- 28th January 2022

Overview:

Social Signal Processing (SSP) is the Artificial Intelligence domain aimed at modelling, analysis and synthesis of nonverbal behaviour in human-human and human-machine interactions. The overall goal of the field is to endow machines with social intelligence, i.e., with the ability to interact with their users in the same way as people interact with one another. The main goal of the course is to introduce the main conceptual and technological elements underlying SSP and its applications. In particular, the lectures include an introduction to social signals and their role in communication, a description of the main technologies aimed at detection and synthesis of social signals, and concrete examples (mostly based on publicly available data and software) aimed at the development of hands-on experience.

Both industry and academia recognise the development of social intelligence in machines as a key-step towards the adoption of AI-driven technologies in everyday life. In particular, the experts of the World Economic Forum have recognised that *"If AI systems are indeed ever to walk among us, they'll have to be able to understand that each of us has thoughts and feelings and expectations [and] they'll have to adjust their behaviour accordingly"*¹. Furthermore, the Oxford Martin Programme on the Impacts of Future Technology states that *"[...] the [next] wave of computerisation will depend on overcoming the engineering bottlenecks related to creative and social intelligence"*².

Last, but not least, the International Federation of Robotics shows that robots interacting with people is the fastest growing area of service robotics. Social Signal Processing appears to be a field that is interesting not only from an academic research point of view, but also in terms of its market potential.

Course objectives:

- To introduce the main conceptual issues related to modelling, analysis and synthesis of social signals in human-human and human-machine interactions.
- To introduce the main components of SSP technologies aimed at detection and interpretation of social signals.
- To introduce the main components of SSP technologies aimed at synthesis of social signals through different forms of embodiment.
- To provide concrete examples through experiments based on publicly available and software packages.

Course Modules:

- A: Fundamental of social signal processing
- B: Advances in the field of social signal processing and its technologies

¹<https://www.weforum.org/agenda/2016/11/the-four-types-of-ai-what-you-need-to-know>

²https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf

About NIT Warangal:

National Institute of Technology Warangal, formerly known as Regional Engineering College was established in 1959. Over the years it has developed into a premier institute of higher learning and is ranked among the top technical education institutions in India. There are 13 Departments offering eight undergraduate and 32 post-graduate programmes besides doctoral programmes. About 5000 students across the country and about 500 international students study in the campus. It is a fully residential campus sprawling over 250 acres with excellent infrastructure, state of the art library, seminar halls guest house and laboratory.

About CSE Dept.:

The Department of Computer Science and Engineering (CSE) offers B.Tech course in CSE, M.Tech courses in CSE, Information Security (IS) and Master of Computer Applications (MCA). The Department has experienced faculty with good publications and well-established laboratories. The Department has liaison with reputed industries and R&D organizations like Microsoft, IBM, Oracle, Accenture, Infosys, TCS, EMC2, C-DAC, Motorola, NIC, Sun Micro Systems, SPSS and tie up with IISc in certain areas. Department conducts various sponsored programmes like GIAN.

About GIAN Course:

Govt. of India approved a programme titled Global Initiative of Academic Networks (GIAN) in Higher Education aimed at tapping the talent pool of internationally renowned scientists and entrepreneurs. This is to encourage their engagement with the institutes of Higher Education in India so as to augment the country's existing academic resources, accelerate the pace of quality reform, and elevate India's scientific and technological capacity to global excellence; <http://www.gian.iitkgp.ac.in>



Who Can Attend?

Students at all levels (B.Tech./M.Tech./Ph.D, in computer science & engineering and allied areas), faculty from reputed academic institutions, engineers & researchers from industries, including R&D organizations.

How to Register?

Stage-1: Web Portal Registration:

Visit <http://gian.iitkgp.ac.in/GREGN/index> and create login User ID and Password. Fill-up the blank registration form and do web registration by paying Rs. 500/- online through Net Banking/ Debit/ Credit card. This provides the user with life time registration to enroll in any number of GIAN courses offered.

Stage-2: Course Registration:

Login to the GIAN portal with the user ID and Password already created in Step 1. Click on Course Registration option at the top of Registration form. Select the Course titled **“Social Signal Processing”** from the list and click on save option. Confirm your registration by clicking on Confirm Course.

Stage-3: Registration form

After course registration, please fill the google form for registration <https://forms.gle/V899NB8hwobM4pDfA>. Payment is made through NEFT/RTGS mode only.

Registration Bank Account details:

Account Name	GIANNITW
Account No.	62447453600
Bank	State Bank of India
Branch	REC Warangal (NIT Campus)
Branch Code	020149
IFSC	SBIN0020149
Microcode	506004011
SWIFT Code	SBININBBH14

Registration Fees Payment Details

Faculty	Rs. 2,000/-
Participants from Industry /Research Organizations	Rs.4,000/-
Students &Research Scholars	
Without award of Grade	Rs.1,000/-
With award of Grade	Rs.1,500/-
Students from abroad	\$50
Faculty/scientists/industry persons from abroad	\$100

For any queries, please contact the coordinators. This course shall be conducted in **ONLINE** mode as per Ministry of Education (MoE) guidelines.

The Faculty:

International Expert:



Alessandro Vinciarelli is Full Professor at the School of Computing Science and Associate Academic of the Institute of Neuroscience and Psychology. His main research interest is Social Signal Processing,

the computing domain aimed at modelling, analysis and synthesis of nonverbal communication in human-human and human-machine interactions. In particular, the work of Alessandro aims at developing computational models capable to infer social and psychological phenomena from nonverbal behavioral cues automatically detected in recordings of human behavior captured with multiple sensors. The goal of his research is to make machines socially intelligent, i.e., capable to seamlessly participate in social interactions. He has published more than 150 scientific works including 3 authored books and he has been PI and co-PI of 15 national and international projects. He has supervised 16 PhD students and 8 postdocs. Furthermore, Alessandro is the co-founder of Klewel, a knowledge management company recognized with several national and international awards, and scientific advisor of Neurodata Lab, a top Emotion AI company. Alessandro has chaired and co-chaired over 25 international scientific events.

Host Faculty/Coordinators:



Kadambari K V is working as assistant professor in the department of Computer Science and engineering at National Institute of Technology (NIT) Warangal. Her research areas include machine learning, computational neuroscience, deep learning, neuroimaging, modeling and simulation.



Tene Ramakrishnu is working as an Assistant Professor in the Department of Computer Science and Engineering, National Institute of Technology, Warangal. His research interest is Big data analytics, Social media analysis, Text mining and Natural language processing. He has published several research papers in International conferences and journals.

Important Dates:

Last date for Receiving Application	16th January 2022
Last date for intimation	17th January, 2022
Course Dates	24th -28th January 2022
	Timings: 3pm- 6pm (IST)

ADDRESS FOR CORRESPONDENCE

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Dr. Tene Ramakrishnu
Coordinators

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