

ABOUT STTP

The STTP aims to provide an interactive platform on latest trends in 5G and AI, the core essentials of current research evolutions enabling faculty to widen their spectrum of knowledge and formulate socially acceptable and economically viable solutions for the challenging requirements in the field of science and technology.

5G wireless technology aims to provide extremely high data rates with support for massive device density and ultra-low latency. Massive Multiple-Input Multiple-Output (Massive MIMO) is a Cutting Edge Technology that can significantly enhance the throughput while also supporting a large number of users. In addition, with 5G helping in the background online simulations for analysis, reasoning, data fitting, clustering and optimizations, AI will become more reliable and accessible at the speed of light.

The Phase II STTP deals with the applications and emphasizes on various use cases of AI for signal processing and technologies involving 5G and Beyond.

4G

5G

6G

ABOUT GRIET

GRIET is a premier institute of engineering, established in the year 1997 under the patronage of the Gokaraju Rangaraju Educational Society. The college is approved by AICTE and is affiliated to JNTUH, Hyderabad and has been given autonomous status. The mission of GRIET is to achieve and impart quality education with an emphasis on practical skills and social relevance. GRIET strives to provide state-of-art infrastructure. Multi-specialty faculty continuously review, innovate and experiment teaching methodologies and learning resources and focus on research, training and consultancy through an integrated institute-industry symbiosis

DEPARTMENT OF ECE

Department of Electronics and Communication Engineering was started in 1997 and is one of the largest departments of GRIET. Department offers 1 UG Program (B. Tech-ECE) and 1 PG Program (M.Tech-VLSI), with a present intake of 300 UG and 18 PG students per year. All the programs are accredited by NBA under Tier-I. The department undertakes consultancy projects for industries and actively involved in various research projects worth Rs. 1.10 Crore funded by AICTE, DST and other organizations.



Gokaraju Rangaraju

Institute of Engineering and Technology

AICTE

sponsored

Short Term Training
Programme

on

AI-MIMO

Millimeter (mm) Wave and
Massive MIMO Applications
for 5G wireless Networks
using AI
(Phase-II)

Applications of AI for 5G
and Beyond

14-19 December 2020

organized by

Department of
Electronics and
Communication Engineering



Department of ECE, GRIET,
Laila Hills, Bachupally, Nizampet,
Hyderabad, Telangana, India 500090

PRINCIPAL

G. Narayanamma Institute of
Technology & Science (for women)
(AUTONOMOUS)
Shaikpet, Hyderabad - 500 104

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Dr Swadesh Kumar Singh, Dean R&D, GRIET

Head of Department

Dr N Swetha, Professor, ECE

Coordinator

Dr Chaitanya Duggineni, Professor, ECE

Co-coordinators

Dr Hima Bindu Valiveti, Professor, ECE

Organizing Committee

Mr KNV Khasim, Assistant Professor, ECE

Mr Vijaya Kumar V, Assistant Professor, ECE

Ms Swathi K, Assistant Professor, ECE

Expected Outcomes

- Dissemination of information on practical 5G cellular networks
- In-depth exposure to advanced wireless techniques behind the successful development of modern 4G and 5G systems
- Create awareness on usage of AI methods for mmWave technology
- Plan curriculum in MIMO courses and stand up to the paradigm shift of evolution of 5G communications
- Envision designing of AI based Massive MIMO systems
- Developing projects and proposals for social and economic development

Target audience

Open to all engineering faculty, students and research scholars who wish to excel in the state of the art technologies involving 5G and AI.

Registration

Certificate to be given to only those participants who secure more than 60% in online quiz and have minimum 80% attendance.

Resource Persons

Dr Rahul Jashvantbhai Pandya
IIT Dharwad

Dr Malaya Kumar Nath
NIT Puducherry

Dr Koteswara Rao L

Principal - KL University Hyderabad

Mr Arpit Deepak Yadav,
Research Scientist, Tensorbrew,
Hyderabad

Dr M Surender

NIT Puducherry

Dr Pushpa Kotipalli

Shri Vishnu Engg. College, AP

Dr Taimoor Khan

NIT Silchar

Dr Dharani Senthil Kumar

Founder - Vani Analytics

Dr Malarvizhi P

SRMIST, Chennai

Mr Sivaram babu

SRMIST, Chennai

Dr N Swetha

GRIET, Hyderabad

LINK FOR REGISTRATION

<https://forms.gle/jpx3StAvAq3tM4pQA>



sttp.grietece@gmail.com



+91 95425 81587



Also register using QR Code



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AICTE-Short Term Training Programme (STTP) Phase-II
on
AI-MIMO: Millimeter (mm) Wave and Massive
MIMO Applications for 5G Wireless Networks using
AI
Sub Theme: Applications of AI for 5G and Beyond
(14th – 19th December 2020)




Inauguration

	Time	Activity
14.12.2020 (MONDAY)	01.30 PM – 01.35 PM	Prayer
	01.35 PM – 01.40 PM	Dr Chaitanya D L, STTP Coordinator Welcome Speech 
	01.40 PM – 01.45 PM	Dr J Praveen, Principal Message to Participants 
	01.45 AM – 01.50 PM	Dr N Swetha, HoD ECE Message to Participants 

Dr. Chaitanya D L
STTP Coordinator

AICTE STTP (Phase-2) on AI-MIMO: Millimeter (mm) Wave and Massive MIMO Applications for 5G
Wireless Networks using AI (14th – 19th December 2020)
Applications of AI for 5G and beyond


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Schedule for One Week Online AICTE Sponsored STTP (Phase-II)
on
AI-MIMO: Millimeter (mm) Wave and Massive MIMO
Applications for 5G Wireless Networks using
AI








Sub Theme: Applications of AI for 5G and Beyond
(14th – 19th December 2020)

Date & Day	Time	Activity
14.12.2020 (MONDAY)		Inauguration
	02.00 PM – 03.30 PM	Dr. Rahul Jashvantbhai Pandya, IIT Dharwad Topic: AI/ML/DL use cases for 5G and Beyond (Hands-on)
15.12.2020 (TUESDAY)	3.45 PM – 5.15 PM	Dr. N. Swetha, Professor & HoD, GRIET Topic: 5G Spectral Characteristics
	02.00 PM – 03.30 PM	Dr. Malaya Kumar Nath, NIT Puducherry Topic: Deep Learning and its Applications for 5G and Beyond 5G
16.12.2020 (WEDNESDAY)	3.45 PM – 4.45 PM	Dr. L. Koteswara Rao, Principal KLUH Topic: Machine learning for Wireless communication
	02.00 PM – 03.30 PM	Dr. Pushpa Kotipalli, SVECW Topic: Underwater Acoustic Communication Under Doppler Effects

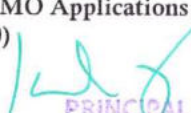
AICTE STTP (Phase-2) on AI-MIMO: Millimeter (mm) Wave and Massive MIMO Applications for 5G
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	3.45 PM – 5.15 PM	Dr. M. Surender, NIT Puducherry Topic: Candidate Technologies for 5G and Beyond	
17.12.2020 (THURSDAY)	02.00 PM – 03.30 PM	Arpit Deepak Yadav, Research Scientist in Artificial Intelligence and Machine Learning at Tensorbrew, Hyderabad Topic: Machine Learning and its Applications in Signal Processing	
	3.45 PM – 5.15 PM	Dr Taimoor Khan, NIT Silchar Topic: Hybrid Artificial Intelligence Paradigms for Antenna Problems	
18.12.2020 (FRIDAY)	02.00 PM – 03.30 PM	Dr. Dharani Senthil Kumar, Founder - Vani Analytics Topic: Deep Learning based Image Classification using KERAS	
	3.45 PM – 5.15 PM	Dr. Malarvizhi P, Mr. Sivaram babu, SRMIST Topic: 3D Wireless Cellular Network for UAVs using 5G+ networks	
19.12.2020 (SATURDAY)	02.00 PM – 3.30 PM	Mr. A. Sambasiva Rao, Scientist-E, NSTL, DRDO Topic: Underwater Channel estimation and Equalization for Adaptive Modem Hands-on Matlab	
	3.30 PM to 4.00 PM	Online Test/Quiz Valedictory & Feedback from Participants	

Dr. Chaitanya D L

AICTE STTP (Phase-2) on AI-MIMO: Millimeter (mm) Wave and Massive MIMO Applications for 5G
Wireless Networks using AI (14th – 19th December 2020)
Applications of AI for 5G and beyond


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STTP Coordinator

AICTE-Short Term Training Programme (STTP) Phase-II
on
AI-MIMO: Millimeter (mm) Wave and Massive MIMO Applications for 5G Wireless Networks using AI
Sub Theme: Applications of AI for 5G and Beyond
(14th – 19th December 2020)



Valedictory

	Time	Activity
19.12.2020 (SATURDAY)	03.30 PM – 03.35 PM	Dr Chaitanya D L, STTP Coordinator Address to participants 
	03.35 PM – 03.40 PM	Dr Jandhyala N Murthy, Director Address to participants 
	03.40 PM – 03.45 PM	Dr N Swetha, HoD ECE Address to participants 
	03.45 PM – 03.50 PM	Closing Remarks – Vote of Thanks

Dr. Chaitanya D L
STTP Coordinator

AICTE STTP (Phase-2) on AI-MIMO: Millimeter (mm) Wave and Massive MIMO Applications for 5G Wireless Networks using AI (14th – 19th December 2020)
Applications of AI for 5G and beyond

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GRIET/20-21/STTP215



GOKARAJU RANGARAJU
Institute of Engineering and Technology



**AICTE sponsored Short Time Training Program Phase-II on
AI-MIMO**

**MILLIMETER (mm) WAVE AND MASSIVE MIMO APPLICATIONS FOR
5G WIRELESS NETWORKS USING AI**

Sub Theme: Applications of AI for 5G and Beyond
14 to 19 December 2020

Organized by Department of Electronics & Communication Engineering

CERTIFICATE

This is to certify that **Ms. SWATHI KARUMURU**, G.Narayanamma institute of technology and science, has participated in Online STTP on AI-MIMO.

Dr. D L Chaitanya
Professor & Co Ordinator

Dr. N Swetha
Professor and HoD-ECE

Dr. Praveen Jugge
Principal

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Electronics and Communication Engineering

2019-20

REPORT

FDP on “AI-MIMO Millimeter (mm) Wave and Massive MIMO Applications for 5G wireless Networks using AI (Phase-II)”

Date of program: 14/12/2020 to 19/12/2020

Resource persons:

Dr Rahul Jashvantbhai Pandya (IIT Dharwad)
Dr Malaya Kumar Nath (NIT Puducherry)
Dr Koteswara Rao L (Principal - KL University Hyderabad)
Mr Arpit Deepak Yadav, (Research Scientist, Tensorbrew, Hyderabad)
Dr M Surender (NIT Puducherry)
Dr Pushpa Kotipalli (Shri Vishnu Engg. College, AP)
Dr Taimoor Khan (NIT Silchar)
Dr Dharani Senthil Kumar (Founder - Vani Analytics)
Dr Malarvizhi P (SRMIST, Chennai)
Mr Sivaram babu (SRMIST, Chennai)

About the Program:

The Department of Electronics and Communication Engineering, in collaboration with the All India Council for Technical Education (AICTE), conducted a highly insightful and application-oriented Short Term Training Programme on "AI-MIMO, Millimeter Wave, and Massive MIMO Applications for 5G Wireless Networks using AI (Phase-II)." This program, held from 14th to 19th December 2020, aimed to delve deep into the practical implementations and advancements in the domain of 5G wireless networks leveraging Artificial Intelligence (AI).


Program Structure:

Day 1-2: AI in Wireless Networks and MIMO Optimization

Introduction to AI's significance in wireless communication. AI algorithms tailored for optimizing MIMO systems.

Day 3-4: Millimeter Wave and 5G Integration

Exploring the nuances of millimeter wave communication and its integration into 5G networks.


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Challenges and opportunities in deploying mmWave for enhanced communication.

Day 5-6: Massive MIMO and beyond 5G

Detailed discussions on Massive MIMO applications and its pivotal role in future wireless technologies.

AI-driven network management strategies and their application in the context of 5G and beyond.

The FDP incorporated theoretical sessions, practical demonstrations, and hands-on workshops. Participants engaged in simulations and case studies to comprehend the practical implications of AI-driven approaches in 5G networks. Industry experts and academicians shared their insights, fostering an environment conducive to knowledge exchange and skill enhancement

Signature of the Faculty member

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