RESOURCE PERSONS

1. Prof. Pradip K Das, IIT Guwahati
2. Dr. Mohit Kumar, NIT Hamirpur
3. Mr. Ritesh Ratti, Delivery Hero, Germany
4. Dr. Swarup Ranjan Behera, Reliance Jio
5. Dr. P. Bhagath, LBRCE Mylavaram

Who can Register?

Faculty Members of AICTE approved institutions, Research Scholars Persons working in R &D organizations, Industry persons & PG students

Registration Link

https://atalacademy.aicte-india.org/

Registration for the FDP program can be done by signing in the ATAL portal. In the portal, Click on Workshops option at left side pane and select the month as November. Then select the FDP with title "Data Analysis Tools & Techniques for Text and Speech Analytics"

Important Dates

Last date for registration: 31-10-2022

Criteria to get certificate

80% of the attendance and 60% minimum score in written test are mandatory to get the certificate.

Contact
Dr. D. Veeraiah, Professor & HOD
+91 8333905834
veeraiahdvc@gmail.com

COMMITTEE MEMBERS

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Dr. D. Veeraiah
Professor & HOD, Dept of CSE

CO-COORDINATOR

Dr. P. Bhagath
Associate Professor, Dept of CSE

Associate Coordinators

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11. Dr. B. Srinivasa Rao, LBRCE
12. Dr. O. Rama Devi, LBRCE

ORGANIZING COMMITTEE

All the faculty members of CSE department

ATAL

AICTE Training And Learning (ATAL) Academy Sponsored
A Two-Week Faculty Development Program on

Data Analysis Tools & Techniques for Text and Speech Analytics

Online: 14th - 19th November 2022
Offline: 21st - 25th November 2022

Organized by

Department of Computer Science and Engineering

Lakireddy Bali Reddy College of Engineering (A)

Accredited by NAAC with 'A' Grade (GPA: 3.20/4)
NIRF-2022 (Rank Band: 251 - 300)
Accredited by NBA under Tier - 1(CSE, IT, ECE, EEE & ME)
Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada
L. B. Reddy Nagar, Mylavaram - 521230, NTR District, A. P, India

LBRCE was founded by Lakireddy Bali Reddy charitable trust in the year 1998 to facilitate technical education to the rural people of Andhra Pradesh. The organization has been striving progressively towards the excellence for the last two decades. The current intake of the institution is 1164 where it started with an initial intake of 180 students. The institution is received autonomous status in the year 2010 from UGC (University Grants Commission), accredited by NAAC. The various departments such as CSE, IT, ECE, EEE, and ME have been accredited by NBA under Tier-1 which is valid up to 2024-25. The college has also been recognized by UGC under 2(f) and 12(B) in addition to the status of 'College with potential for excellence (CPE)'.

About the Department

The department of Computer Science and Engineering was established in the year 1998 and offers Bachelor of Technology in CSE, CSE (AI & ML), and Master of Technology in CSE. The initial intake of the B. Tech program was 40 while the current intake reached 240. The department was accredited by NBA since 2008. JNTUK Kakinada recognized the department as a research centre. The department consists of 43 faculty members with 13 Ph. Ds from IIT, NIT, and State Universities.

KEY TAKE AWAYS

1. Applications of Text and Speech analytics
2. Frameworks for text analytics useful in NLP
3. Python speech processing framework
4. A comprehensive knowledge on Graph Signal Processing (GSP)
5. Preliminaries on Dataset creation

Topics to be Covered

1. Applications of data science in NLP

- Introduction to Text analytics
- NLP use-cases in industry
- NLP for social data analytics

2. Fundamentals of Speech Recognition

- Basic understanding of speech data
- Temporal speech signal representations
- Frequency domain speech signal representations

3. Tools and Techniques for spoken language processing

- Speech Processing framework
- HMM and GMM for Speech processing

4. Text Analytics

- Transformer based models
- Recommendation systems

5. Structural Speech Processing

- Fundamentals of Graph Signal Processing (GSP)
- Python libraries to processing speech data

About ATAL Academy

1. The vision of the ATAL academy is to empower the faculty to achieve goals of higher education such as access, equity, quality
2. The academy supports technical institutions in fostering research, innovation, and entrepreneurship through training
3. ATAL academy provides a variety of opportunities for training and exchange of experiences such as workshops, orientations, learning communities, peer monitoring and other faculty development programs
4. ATAL academy stress upon empowering technical teachers and technicians using information and communication technology

About the FDP

Data science is a multi-disciplinary area that uses scientific methods, algorithms, and systems to extract hidden knowledge and insights from data. Mining large amounts of structured and unstructured data to identify patterns can help an organization in many ways. Data science is confluence of Mathematics, Statistics, and Computer Science disciplines that incorporates techniques like machine learning, cluster analysis, data mining and visualization. The two-week FDP program is devoted to offer a wide overview in the context of text and speech analytics. The curriculum of the FDP is designed to cover both theoretical and practical knowledge that will help diverse groups including academicians, industry professionals, researchers, etc.

Objectives of the FDP

1. To disseminate the knowledge of data science among students, researchers, and academicians
2. Provide conceptual understanding in the domains of NLP and speech processing
3. To create awareness and interest in latest developments to the academia
4. Empower professionals in the field of data science to fulfill the growing necessity of various organizations
5. Providing knowledge on essential frameworks for text and speech analytics

Program Schedule

Week 1(14th Nov 2022 – 19th Nov 2022) – Online (7:00 PM – 9:30 PM)

14-11-2022	Theme: NLP for Text Analytics	
Mr. Ritesh Ratti	Session 1 (I) 7:00 PM to 7:50 PM	Introduction to Text Analytics
	Session 1 (II) 8:00 PM to 8:50 PM	Transformer based models for NLP
	9:00 PM to 9:30 PM	Interactions
15-11-2022	**Theme: Advanced Tools for NLP**	
Dr. Swarup Ranjan Behera	Session 2 (I) 7:00 PM to 7:50 PM	NLP for Industry applications
	Session 2 (II) 8:00 PM to 8:50 PM	Deploying ML applications
	9:00 PM to 9:30 PM	Interactions
16-11-2022	**Theme: Introduction to Speech Recognition**	
Prof. Pradip K Das	Session 3 (I) 7:00 PM to 7:50 PM	Fundamentals of Speech Recognition
	Session 3 (II) 8:00 PM to 8:50 PM	Frameworks in Speech Recognition
	9:00 PM to 9:30 PM	Interactions
17-11-2022	**Theme: Markov Models for Speech Processing**	
Dr. Mohit Kumar	Session 4 (I) 7:00 PM to 7:50 PM	Hidden Markov Models
	Session 4 (II) 8:00 PM to 8:50 PM	Speaker Characterization
	9:00 PM to 9:30 PM	Interactions
18-11-2022	**Theme: Mixture Models for Speech Recognition**	
Dr. Mohit Kumar Dr. P. Bhagath	Session 5 (I) 7:00 PM to 7:50 PM	Applications of GMM to Speaker recognition
	Session 5 (II) 8:00 PM to 8:50 PM	Intuition of Structural ProcessingMethods
	9:00 PM to 9:30 PM	Interactions
19-11-2022	**Theme: Spoken language understanding for low-resource languages**	
Dr. P. Bhagath	Session 6 (I) 7:00 PM to 7:50 PM	Speech recognition for Low resource languages in Indian context
	Session 6 (II) 8:00 PM to 8:50 PM	Phoneme Boundary Analysis
	9:00 PM to 9:30 PM	Interactions

Week 2 (21st Nov 2022 – 25th Nov 2022) – Offline (9:30 AM – 4:30 PM)

21-11-2022	**09:00 - 09:30**	**09:30 – 12:00**	**12:00 – 01:00**	**01:00 – 02:00**	**02:00 – 04:30**
	Inauguration	**Session – 7** Dataset preparation forspeech recognition **Prof. Pradip K. Das IIT Guwahati**	Article - 1 Discussion **Prof. Pradip K. Das**	**Lunch Break**	**Session – 8** Practice problems on feature extraction and visualization **Prof. Pradip K. Das IIT Guwahati**
22-11-2022	**09:30 - 12:00**		**12:00 – 01:00**		**02:00 – 04:30**
	Session - 9 Speaker Recognition Frameworks **Dr. Mohit Kumar** NIT Hamirpur		Article - 2 Discussion **Dr. Mohit Kumar**		**Session - 10** **Speaker Recognition Frameworks** Dr. Mohit Kumar **NIT Hamirpur**
23-11-2022	**09:30 - 12:00**		**12:00 – 01:00**		**02:00 – 04:30**
	Session - 11 NLP Use-cases **Dr. Swarup Ranjan Behera** **Reliance Jio AICoE**		Article - 3 Discussion **Dr. Swarup Ranjan Behera**		**Session - 12** **Application Building for NLP application** **Dr. Swarup Ranjan Behera** **Reliance Jio AICoE**
24-11-2022	**09:30 - 12:00**		**12:00 – 01:00**		**02:00 – 04:30**
	Session - 13 Speech RecognitionSystem Framework **Dr. P. Bhagath** LBRCE		Article - 4 Discussion **Dr. P. Bhagath**		**Session – 14** Digit Recognition system Development **Dr. P. Bhagath** LBRCE
25-11-2022	**10:00 - 12:00**		**12:00 – 01:00**		**02:00 – 04:30**
	Project Charter **Dr. Swarup Ranjan Behera** **Reliance Jio AICoE**		MCQs or Interactions		Reflection Journal, Feedback, Valedictory