# A Reflection Report For

# One Week

# Short Term Training Programme

# On

# "Transition From Machine Learning to Deep Learning : Text, Image and Speech Processing"

## (MLDLTISP'18)

November 12-17,2018

Organized By

Department of Computer Science & Engineering

COORDINATOR

# ORGANIZING COMMITTEE

Name of the Chief Patron        : Dr. M. Sivanandham, Secretary

Name of the Patron              : Dr. S. Ganesh Vaidyanathan, Principal

Name of the Convener            : Dr. R. Anitha, Prof & HOD/CS

Name of the Coordinators        : Dr. R. Nedunchelian, Prof/CS

                                  Dr. R. Jayabhaduri, Asso Prof/CS

                                  Ms. V. Rajalakshmi, AP/CS

                                  Mr. A. Sowmyanarayanan, AP/CS

                                  Mr. M. Suresh Kumar, AP/CS

# STTP MLDLTISP'18

# Brochure & Agenda

# SHORT TERM TRAINING PROGRAMME

## "Transition from Machine Learning -> Deep Learning : Text, Image and Speech Processing" (MLDLTISP '18)

### November 12-17, 2018

## ABOUT THE SHORT TERM TRAINING PROGRAMME

The Short Term Training Programme (MLDLTISP '18) is intended to provide opportunity for faculty members and research scholars for upgrading their knowledge and acquiring practical skills in the areas of machine learning and deep learning. The objective of the programme is to help the participants learn the principles of machine learning, deep learning and understand how to build deep neural networks for solving problems in text, image, graph and speech processing. The STTP will equip them to use deep learning for various machine learning tasks and expose them to the challenges in deep learning research. The programme includes hands-on development of deep neural networks in Python using TensorFlow, Keras and PyTorch.

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Dr. M. Sivanandham
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Dr. R. Anitha
Professor & HOD

**Coordinators**
Dr. R. Nedunchelian
Dr. R. Jayabhaduri
Ms. V. Rajalakshmi
Mr. A.Sowmyanarayanan
Mr. M.Suresh Kumar

## TOPICS TO BE COVERED

- Machine Learning Basics
- Introduction to Deep Learning
- Convolutional Neural Networks (CNN)
- Long Short-Term Memory (LSTM)
- Recurrent Neural Network (RNN)
- Generative Adversarial Network (GAN)
- Deep Learning for Text Analysis
- Deep Learning for Image Processing
- Deep Learning for Speech Recognition
- Graph Convolutional Network
- Natural Language Generation Data
- Hands-on : Tensor Flow, Keras and PyTorch

## RESOURCE PERSONS

Deep learning researchers and practitioners from premier educational institutions and industries will share their expertise.

## TARGET AUDIENCE

Engineering Faculty and Research Scholars
Seats limited to 40, Preference based on First Come First Served

## FEE STRUCTURE

Faculty : ₹ 2,500/-
Research Scholar : ₹ 2,500/-

## REGISTRATION

Register through DD drawn in favor of **"The Principal, Sri Venkateswara College of Engineering"** payable at Chennai along with the registration form.

## IMPORTANT DATES

Last date for Registration: November 4, 2018
Selection Intimation : November 8, 2018
Venue : Cloud Computing Lab, CS Department

## Address for Communication
**The Coordinators**
**STTP MLDLTISP'18**
**Department of Computer Science and Engineering**
**Sri Venkateswara College of Engineering [Autonomous]**
**Post Bag No. 1, Chennai-Bengaluru High Road**
**Sriperumbudur Tk – 602 117, Tamilnadu, INDIA.**

Tel : +91-44-27152000 Extn. 305/311/301
Email: mldltisp@gmail.com
Web : www.svce.ac.in
Mob : 94448 85080, 94441 17480, 91769 99190, 99945 26625, 99444 73776

# SRI VENKATESWARA COLLEGE OF ENGINEERING, SRIPERUMBUDUR Tk – 602 117
## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
### Short Term Training Programme on
### "Transition from Machine Learning -> Deep Learning: Text, Image and Speech Processing"
### November 12 - 17, 2018  --  AGENDA

| Day | Date | Time | Activity | Resource Person |
|---|---|---|---|---|
| 1 | 12/11/2018 | 8:50 – 10:50 AM | Introduction to Deep Learning Architectures | Dr. C.Aravindan, SSNCE |
| | | 11:00 – 12:05 PM | Hands-on : Machine Learning with Python | Dr. R.Jayabhaduri, SVCE<br>Ms. Aditi Prakash, Screel Labs |
| | | 12:45 – 15:15 PM | Hands-on : Simple Neural Network using Keras | Ms. Aditi Prakash, Screel Labs<br>Dr. R.Jayabhaduri, SVCE |
| | | | | |
| 2 | 13/11/2018 | 8:35 – 10:10 AM | Hands-on : Image Processing Using ML in Python | Dr. J.Bhuvana, SSNCE<br>Dr. P. Mirunalini, SSNCE |
| | | 10:25 – 12:05 PM | Introduction to CNN in Keras | |
| | | 12:45 – 15:15 PM | Hands-on : Image Classification Using CNN in Keras | |
| | | | | |
| 3 | 14/11/2018 | 8:35 – 10:10 AM | Hands-on : Natural Language Processing using NLTK | Dr.D.Thenmozhi, SSNCE<br>Mr.B.Senthilkumar, SSNCE |
| | | 10:25 – 12:05 PM | Hands-on : Scikit-learn | |
| | | 12:45 – 15:15 PM | Hands-on : CNN using Keras, LSTM using PyTorch | |
| | | | | |
| 4 | 15/11/2018 | 8:35 – 10:10 AM | Introduction to Recurrent Neural Networks (RNNs) and Long Short Term Memory Units LSTM | Mr. Bharat Goel, Komparify<br>Ms. Dipika Rajesh, Mad Street Den |
| | | 10:25 – 12:05 PM | Hands-on : LSTMs for Sentiment Analysis with Keras | |
| | | 12:45 – 15:15 PM | Introduction to Generative Adversarial Networks (GANs),Demo: GANs for Image Generation with Keras | |
| | | | | |
| 5 | 16/11/2018 | 8:35 – 10:10 AM | Introduction to Speech Processing | Dr. B.Bharathi, SSNCE<br>Dr. N.Sripriya, SSNCE |
| | | 10:25 – 12:05 PM | Hands-on : LibROSA for Speech applications | |
| | | 12:45 – 15:15 PM | Hands-on : CNN with Keras for Speech applications | |
| | | | | |
| 6 | 17/11/2018 | 8:35 – 10:10 AM | Graph Convolutional Networks | Mr. V. Priyesh, IIT-M |
| | | 10:25 – 12:05 PM | Natural Language Generation from Structured Data using RNN | Ms. Preksha Nema, IIT-M |
| | | 13:00 – 14:30 PM | Hands-on : Kaldi ASR | Ms. N. Rajeswari, SVCE |

# Report on STTP MLDLTISP'18

The department of Computer Science and Engineering organized One Week Short Term Training Programme on "Transition from Machine Learning to Deep Learning : Text, Image and Speech Processing (MLDLTISP'18) in CS-Lab 4 (Cloud Computing Lab), CS department during November 12-27,2018.

# Objective of STTP MLDLTISP'18

The Short Term Training Programme MLDLTISP'18 is intended to provide opportunity for faculty members and research scholars for upgrading their knowledge and acquiring practical skills in the area of machine learning and deep learning. The objective of the programme is to help the participants learn the principles of machine learning, deep learning and understand how to build deep neural networks for solving problems in text, image, graph and speech processing. The STTP will equip them to use deep learning for various machine learning tasks and expose them to the challenges in deep learning research. The programme includes hands-on development of deep neural networks in Python using TensorFlow, Keras and PyTorch.

# Day 1 : November 12,2018

The STTP MLDLTISP'18 commenced with a prayer song by Ms. G. Janakasudha, AP/CS. Dr. R. Jayabhaduri, Associate Professor/CS, Coordinator welcomed the Chief guest Dr. C. Aravindan, Professor, CSE and Assistant Director of SASE, SSNCE and invited Dr. R. Anitha, Prof & HOD/CS to deliver inaugural address of this short term training programme.
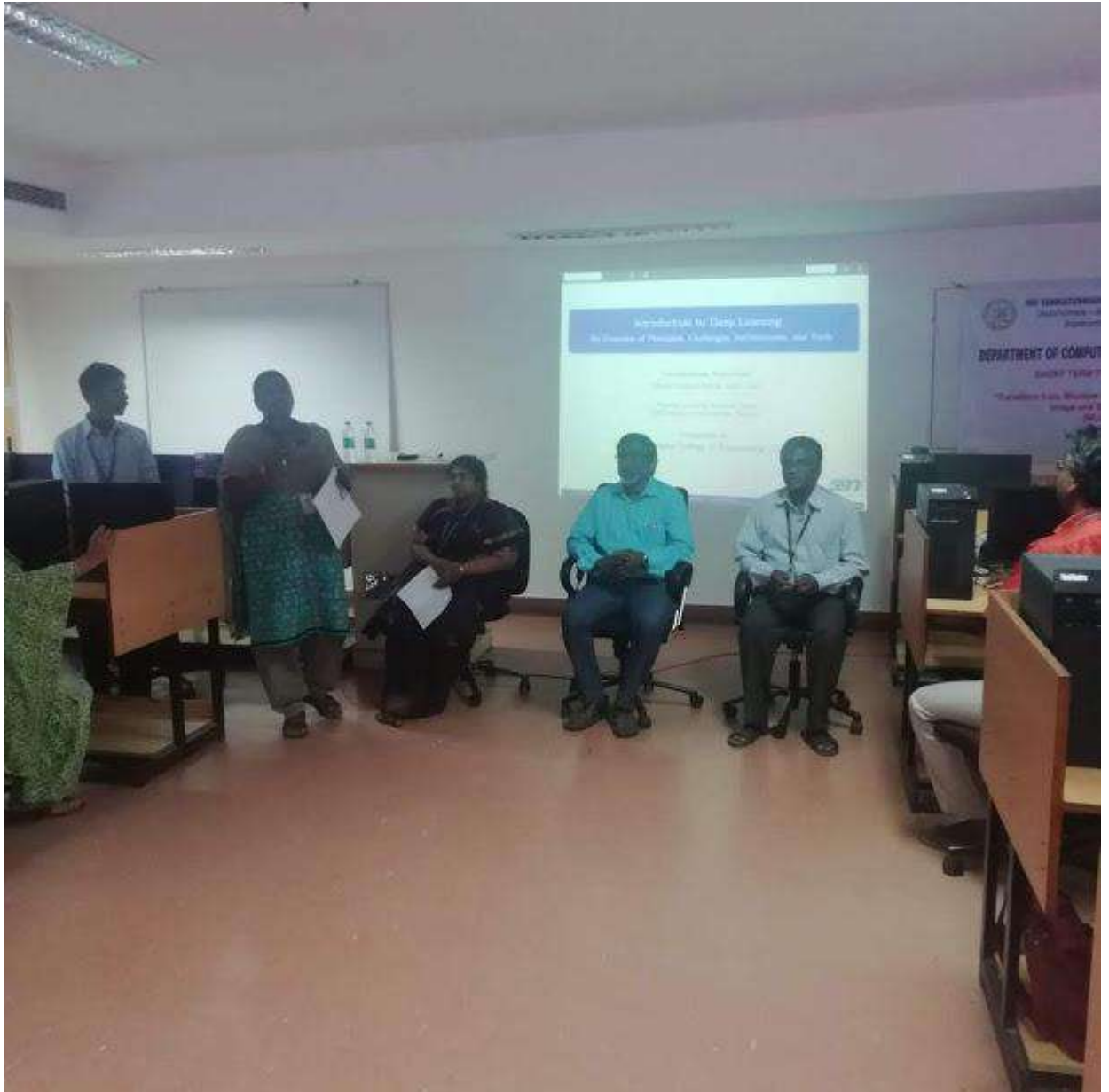


Dr. R.Anitha, Convenor, STTP MLDLTISP'18 explained about the objectives and importance of this short term training programme. She invited and introduced the resource person Dr. C. Aravindan for the first session to deliver his guest lecture.
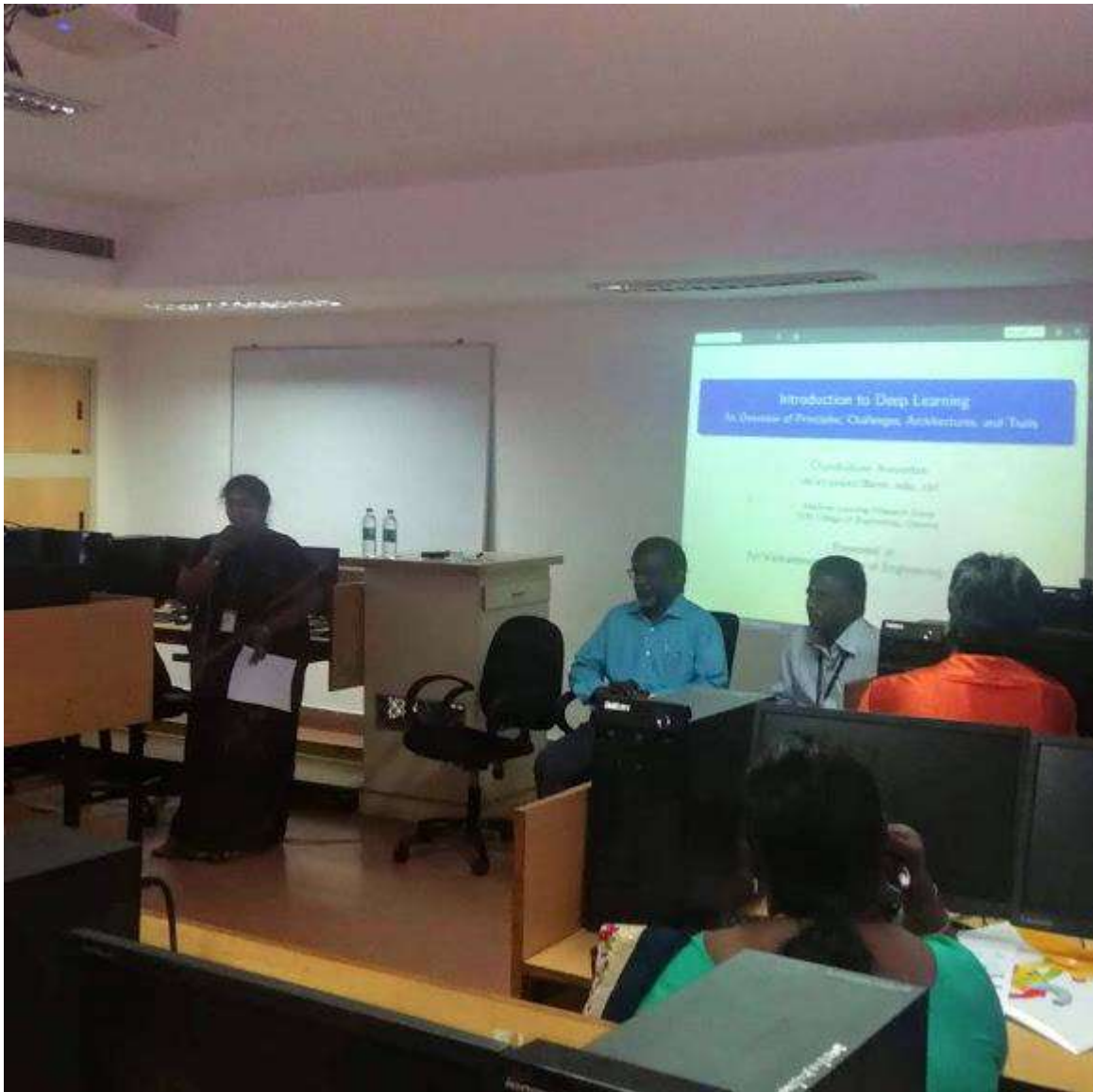
The first session was a talk on "Introduction to Deep Learning : An Overview of Principles, Challenges, Architectures, and Tools" by Dr. C. Aravindan. In his lecture, he first explained about intelligence and learning concepts with respect to several examples followed by Machine Learning concepts. He discussed about the learning paradigms and various types of available models. Then he covered the basics of Neural Networks and Network architectures. It is very important to highlight that he addressed the research issues in network architectures and variations in back-propagation algorithm.

Then he talked about Deep Neural Networks in which he explained with real-time applications why large datasets demand higher model capacity.

He explained about New Deep Learning ideas and various activations functions : Rectifier, ReLU, Softplus, Swish and Softmax. He also talked about the regularization methods : Dropout and Optimization techniques. He covered the challenges and computation issues in this part.

He explained the Deep Learning architectures – Convolutional Neural Networks (CNN) and Recurrent Neural Networks (RNN). Convolution Network for Character Identification, CNN architecture for ImageNet : AlexNet and other CNN architectures for ImageNet were also covered. RNN for Sequence generation tasks, Long Short Term Context (LSTM) and its variations, Recurrent Seq2Seq architectures were also covered in his talk.



Dr.C.Aravindan concluded his talk by explaining about the tools for deep learning namely TensorFlow, Theano, CNTK, Keras, Torch and Caffe.  His lecture was a very inspiring one among the participants as he explained the challenges and research issues in Machine Learning and Deep Learning concepts.  His talk justified the necessity for transition from Machine Learning to Deep Learning for real-time applications.

Session 2 was a hands-on session on "Setting up Deep Learning Environment" using Anaconda by Dr. R. Jayabhaduri, Asso Prof, CSE, SVCE and MLDLTISP'18 Co-ordinator along with Ms. Aditi Prakash, an Alumnus of SVCE (2018 – CS Batch) and Data Scientist Intern at Screel labs. The participants were trained to install Conda packages for text analysis, images and speech processing.
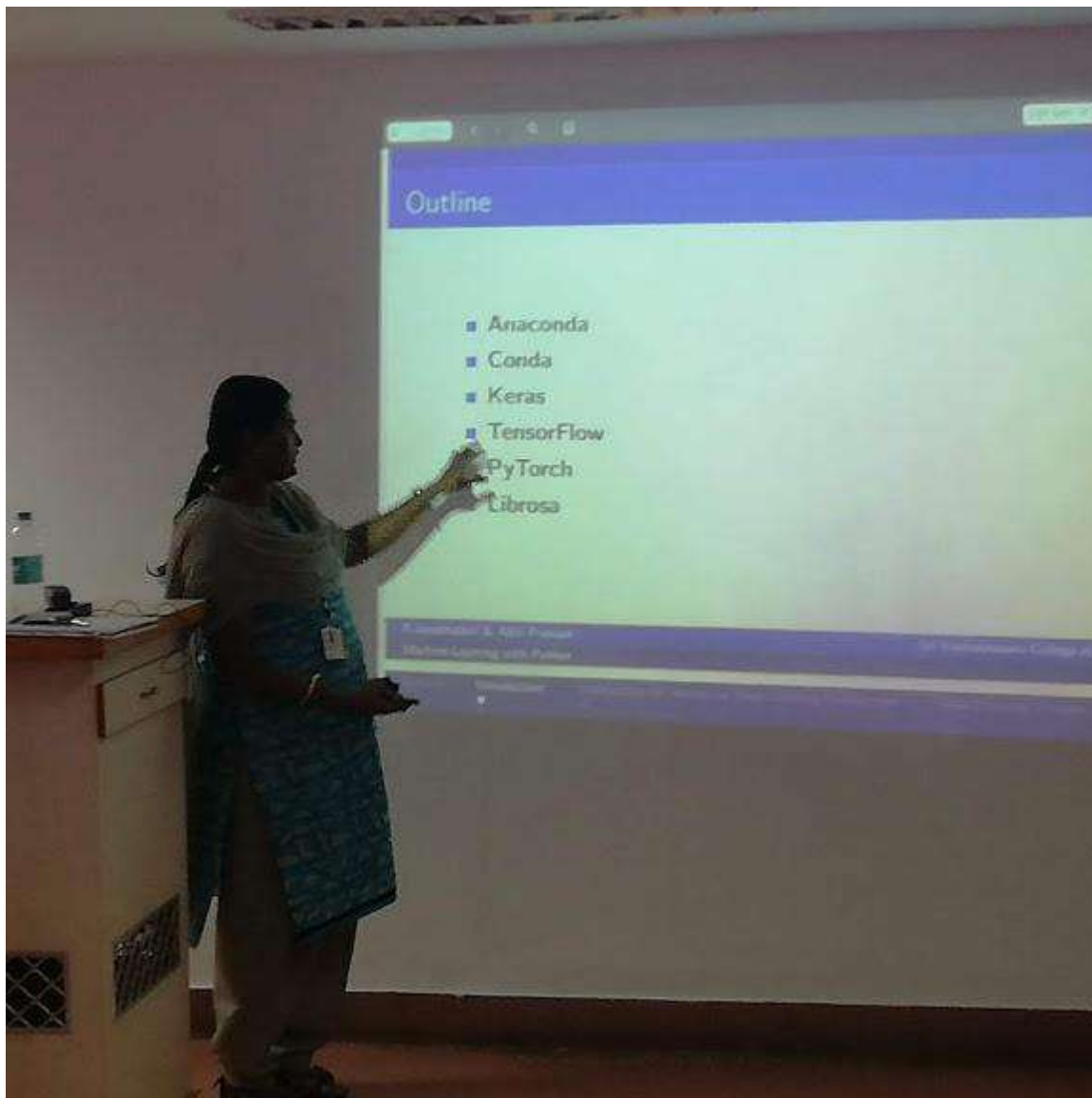


During afternoon session, Dr. R. Jayabhaduri and Ms. Aditi Prakash gave hands-on training on NumPy basics and Construction of Simple Neural Network using NumPy in Juypter notebook and Spyder IDE. The participants worked on the NumPy basics : Creation of arrays, Printing arrays, Basic operations in arrays, Shape manipulation in arrays and Indexing. The participants also constructed a simple Artificial Neural Network using NumPy. The hands-on sessions were very useful to participants as it helped them to gain knowledge towards setting up deep learning environment and Simple Nueral Network construction using NumPy.
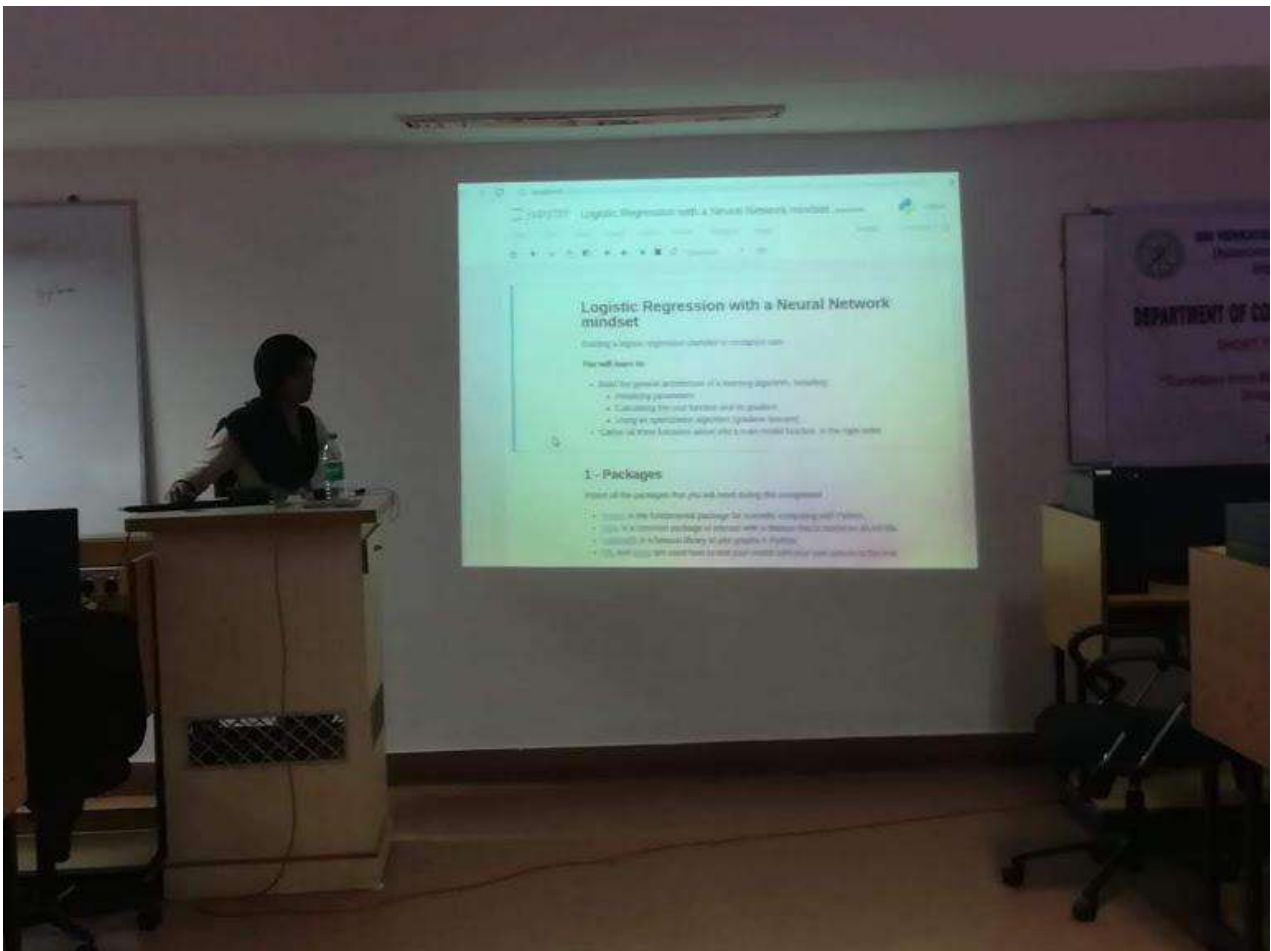
# Day 2 : November 13,2018

Day 2 in the STTP was on Image Processing using Machine Learning and Deep Learning. Dr. R. Anitha, Convener introduced the resource persons Dr. J.Bhuvana, Asso Prof/CS, SSNCE and Dr. P. Mirunalini, Asso Prof/CS, SSNCE for theoretical and hands-on sessions.
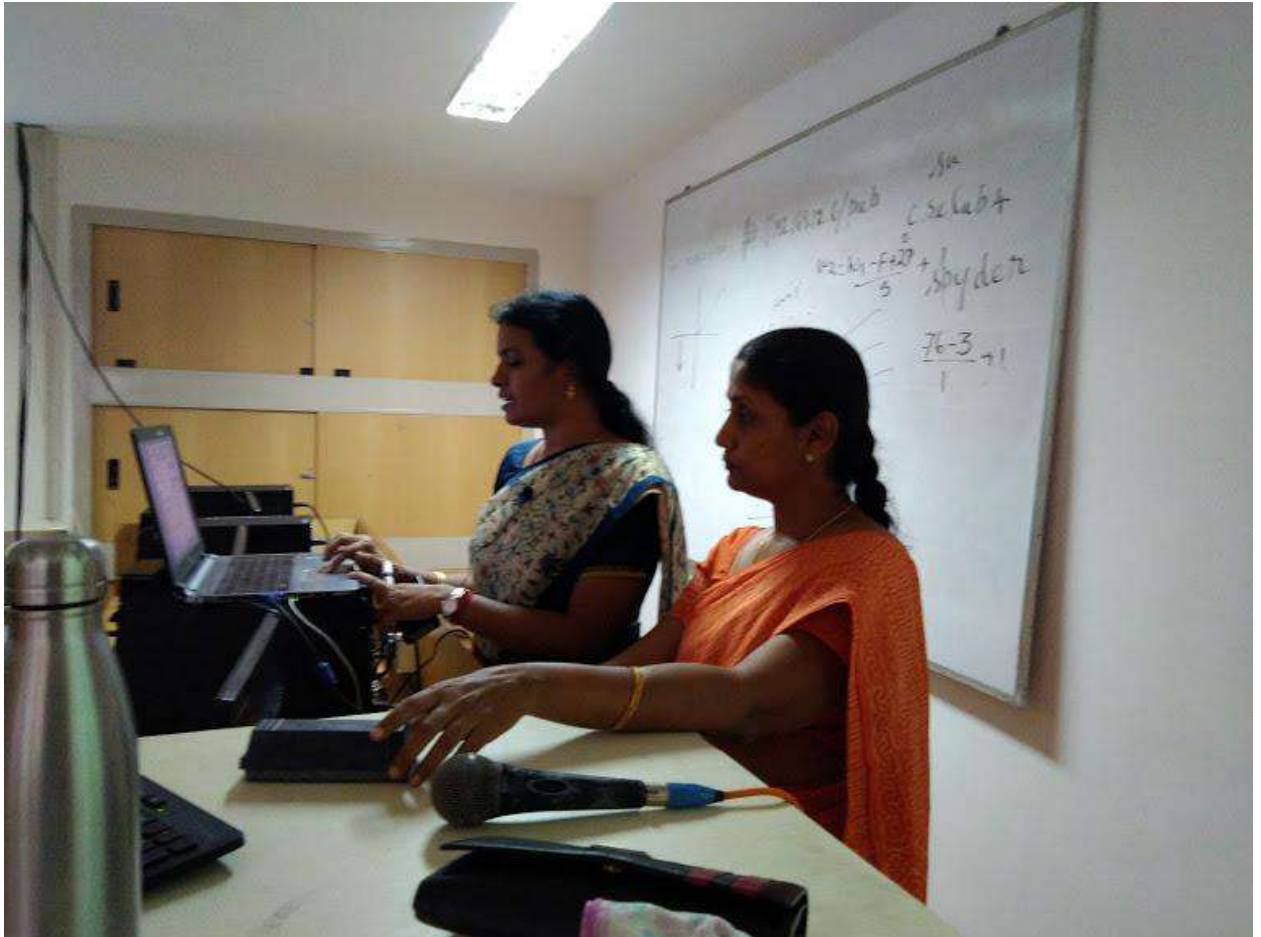


The first session was a lecture session on Image processing by Dr. P. Mirunalini. The hands-on session on developing a Simple Neural Network in Python with Keras was demonstrated by Dr. P. Mirunalini and Dr. J. Bhuvana. During hands-on training, the participants learnt the following steps : Load Data, Defining Model in Keras as a sequence of layers, Compiling model, Training a model on data and Fitting the model to execute on data. The participants developed simple neural network using CPU.

Building a Deep Learning Model using Keras was covered by Dr. J.Bhuvana and Dr. P. Mirunalini in the afternoon hands-on session. The participants built a deep neural network using Sequential model type using Dense, a standard layer type to add layers to the model. Adam Optimizer and loss function are used to compile the built model. fit() function was used to train the model.

Participants implemented simple and deep neural networks in Python with Keras in Spyder IDE. The participants gained knowledge to work on OpenCV commands and develop simple and deep neural networks using Keras for various image datasets.
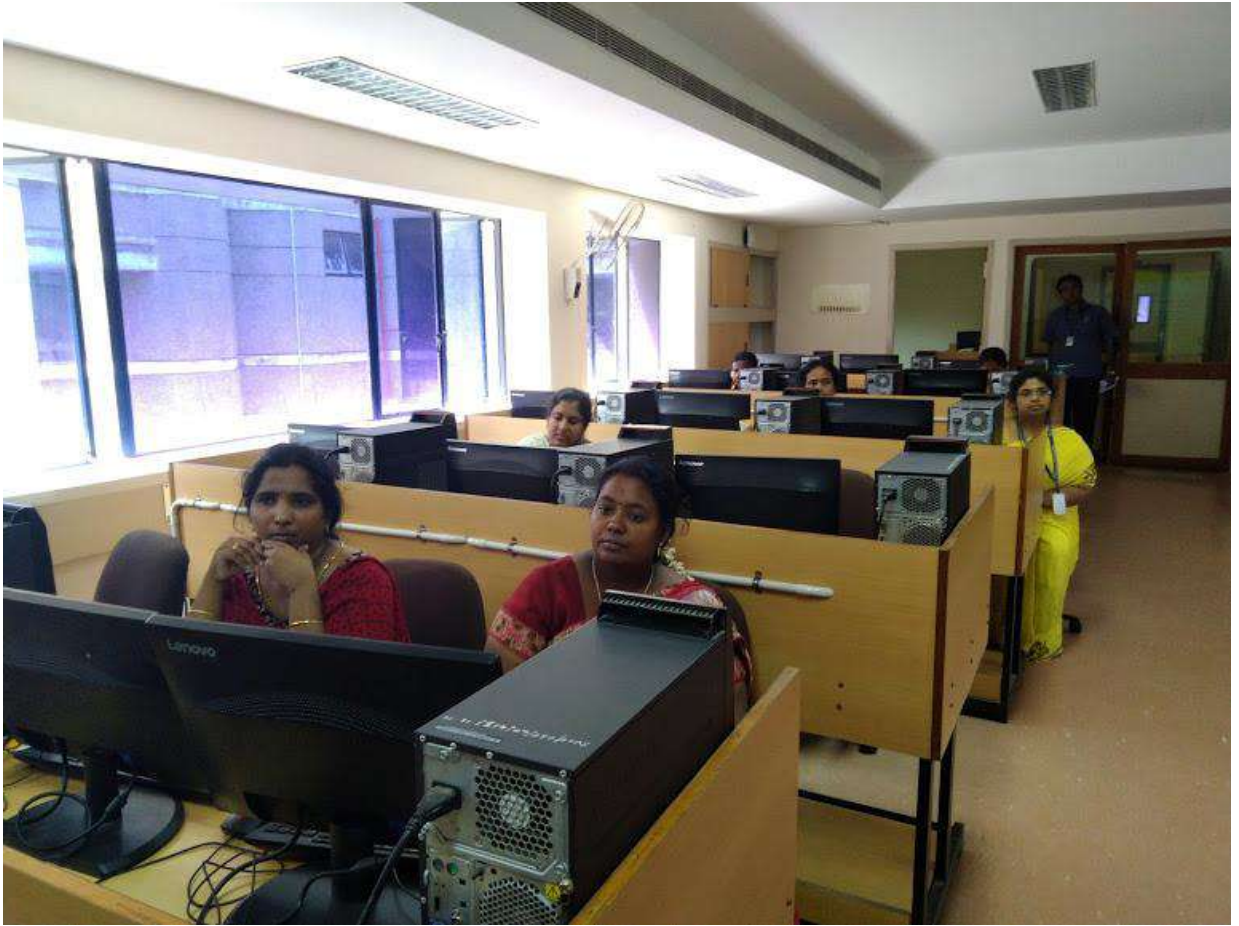
# Day 3 : November 14,2018

Dr. R. Anitha, Convener welcomed and introduced the resource persons Dr. D. Thenmozhi, Associate Professor/CS, SSNCE and Mr. B. Senthil Kumar, Assistant Professor/CS, SSNCE to deliver lecture on NLTK stack and hands-on training on Simple and Deep Neural Networks using PyTorch for Text processing.



The participants constructed a Simple Neural Network using torch module to provide all the necessary Tensor operators. The participants learnt to define data types in PyTorch, define model for computation graph and to train the neural network. Spyder was used for hand-on sessions. During the afternoon session, the participants constructed Deep Neural Network using MNIST dataset.

The participants gained knowledge on feature extraction from text understanding to build a deep neural network using NLTK and PyTorch for various datasets. The participants were highly interactive.
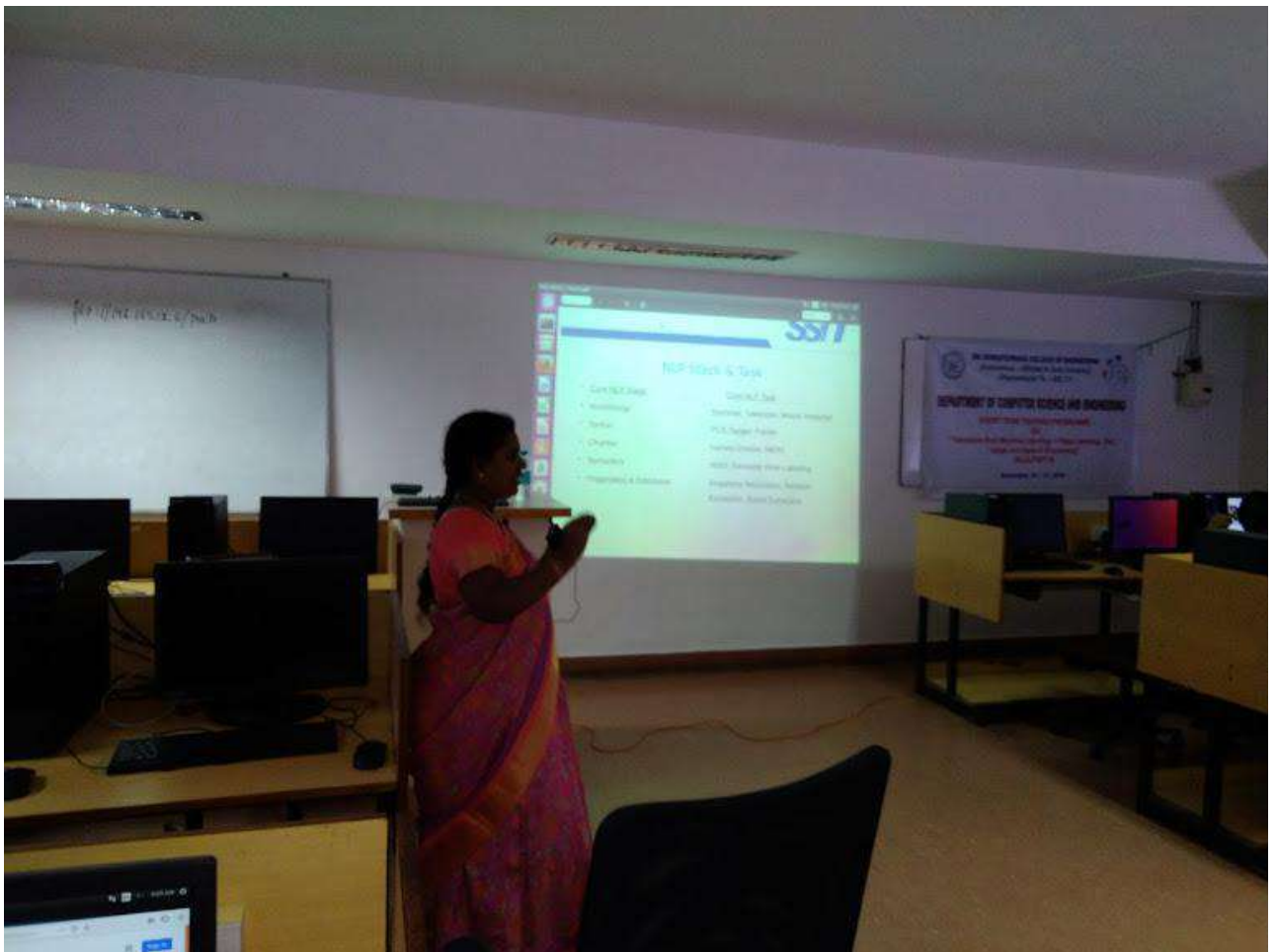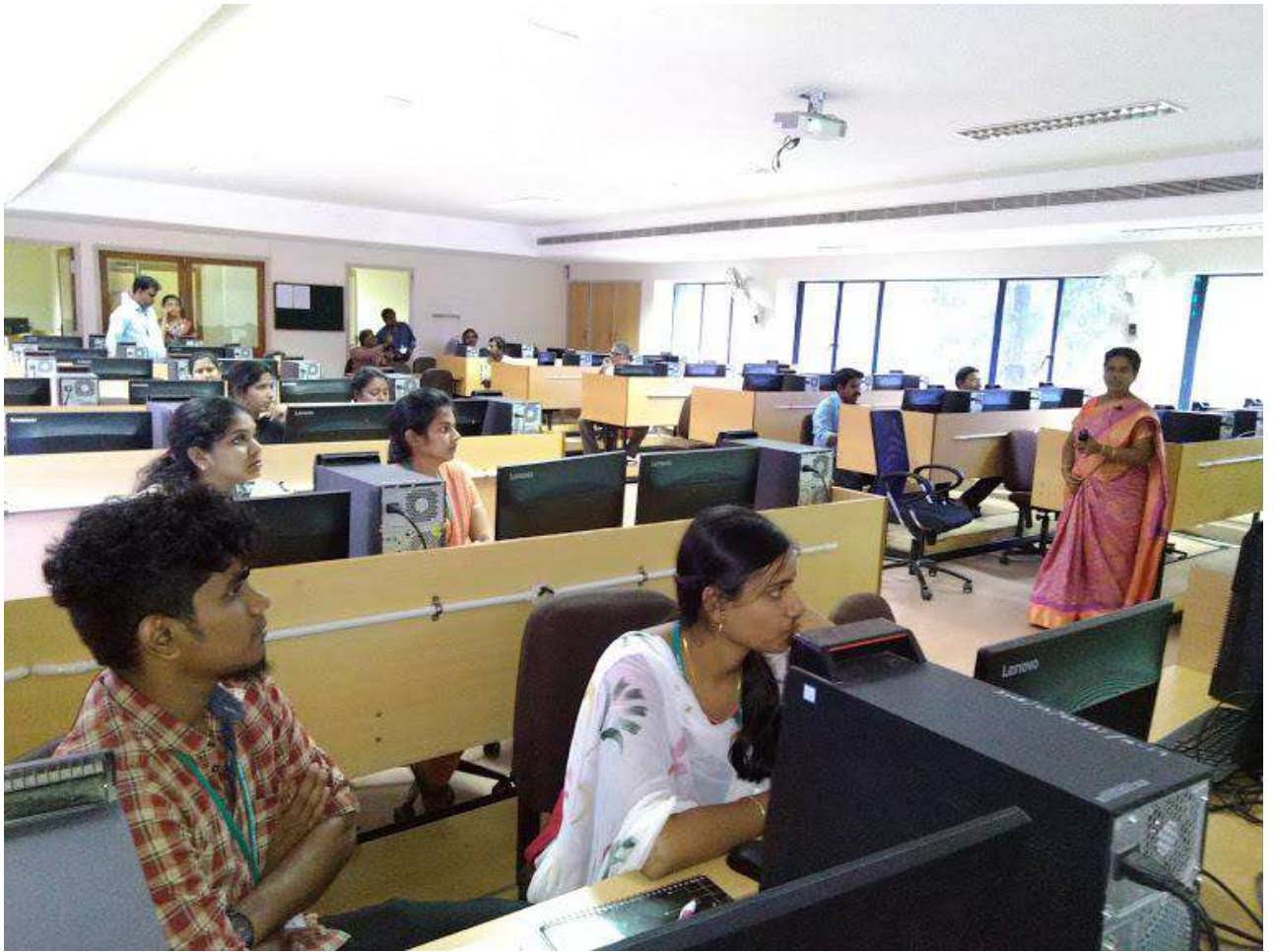
Dr. R.Nedunchelian, Professor, CSE and Coordinator of STTP MLDLTISP'18 appreciated the resource persons for their wonderful speech and hands-on training for text analysis using PyTorch.

# Day 4: November 15,2018

Ms. V. Rajalakshmi, AP/CS and Coordinator, STTP MLDLTISP'18 introduced the resource person of Session 1, Ms. N. Rajeswari, Associate Professor, CS, SVCE to give a lecture session on Kaldi for Automatic Speech Recognition (ASR) system. Ms. N.Rajeswari gave a demonstration on Kaldi which is a toolkit for speech recognition. She also explained the commands to build an Automatic Speech Recognition (ASR) system.



Ms. N. Rajeswari explained about downloading Kaldi, installing Kaldi and versions of Kaldi. The lecture also covers the required software packages namely Git and wget to download and install Kaldi. To set up an ASR system, she showed how to prepare audio data, acoustic data and language data along with its tasks. When the Kaldi environment with ASR system is ready to run, two different training methods namely MONO and TRI1 are used to run the scripts. The participants gained knowledge about Kaldi to build an automatic speech recognition system.

Dr. R.Jayabhaduri introduced Mr. Bharat Goel, an alumnus of SVCE (2018 – CS Batch), Software Developer at Cheenilabs and Ms. Dipika Rajesh, an alumnus of SVCE (2018 – CS Batch), Data Scientist Intern at Mad Street Den, who were the resource persons for the second and third sessions.

Mr. Bharat Goel and Ms.Dipika Rajesh gave an excellent talk on the topic "Introduction to LSTM and RNN" and "Introduction to GAN" respectively.
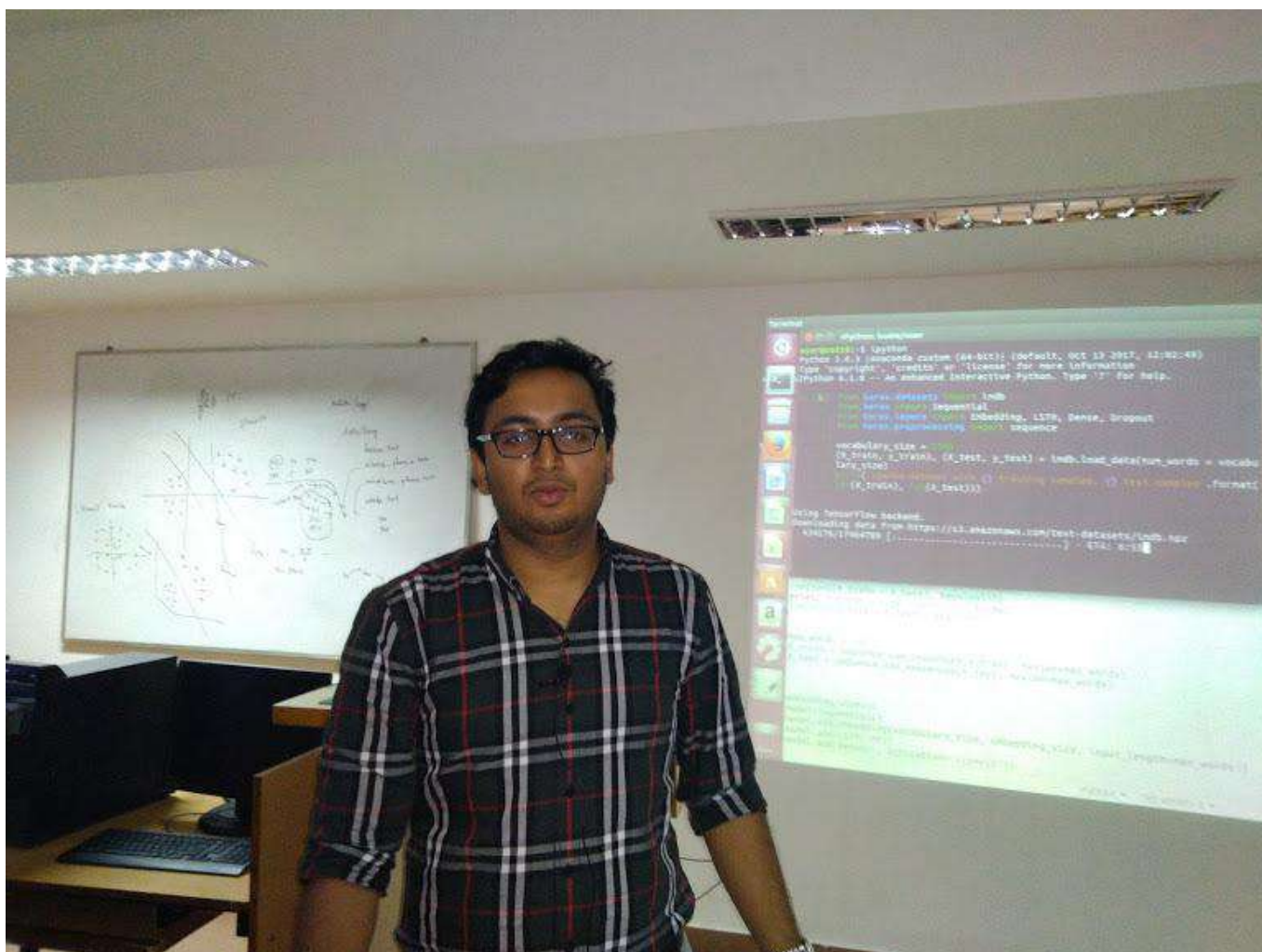
Both gave hands-on training on LSTM and RNN for text processing as well as for flower dataset. The participants enjoyed the hands-on session. As the LSTM program took more time to run, they clearly demonstrated the necessity of GPU for execution of deep learning projects using GAN for large datasets. During afternoon session, the hands-on training was on GAN to process images.

# Day 5: November 16,2018

Day 5 in the STTP was on Speech Processing using Machine Learning and Deep Learning algorithms. Dr. R. Anitha, Convener introduced the resource persons Dr. B. Bharathi, Asso Prof/CS, SSNCE and Dr. N. Sripriya, Asso Prof/IT, SSNCE for the theoretical and hands-on sessions.
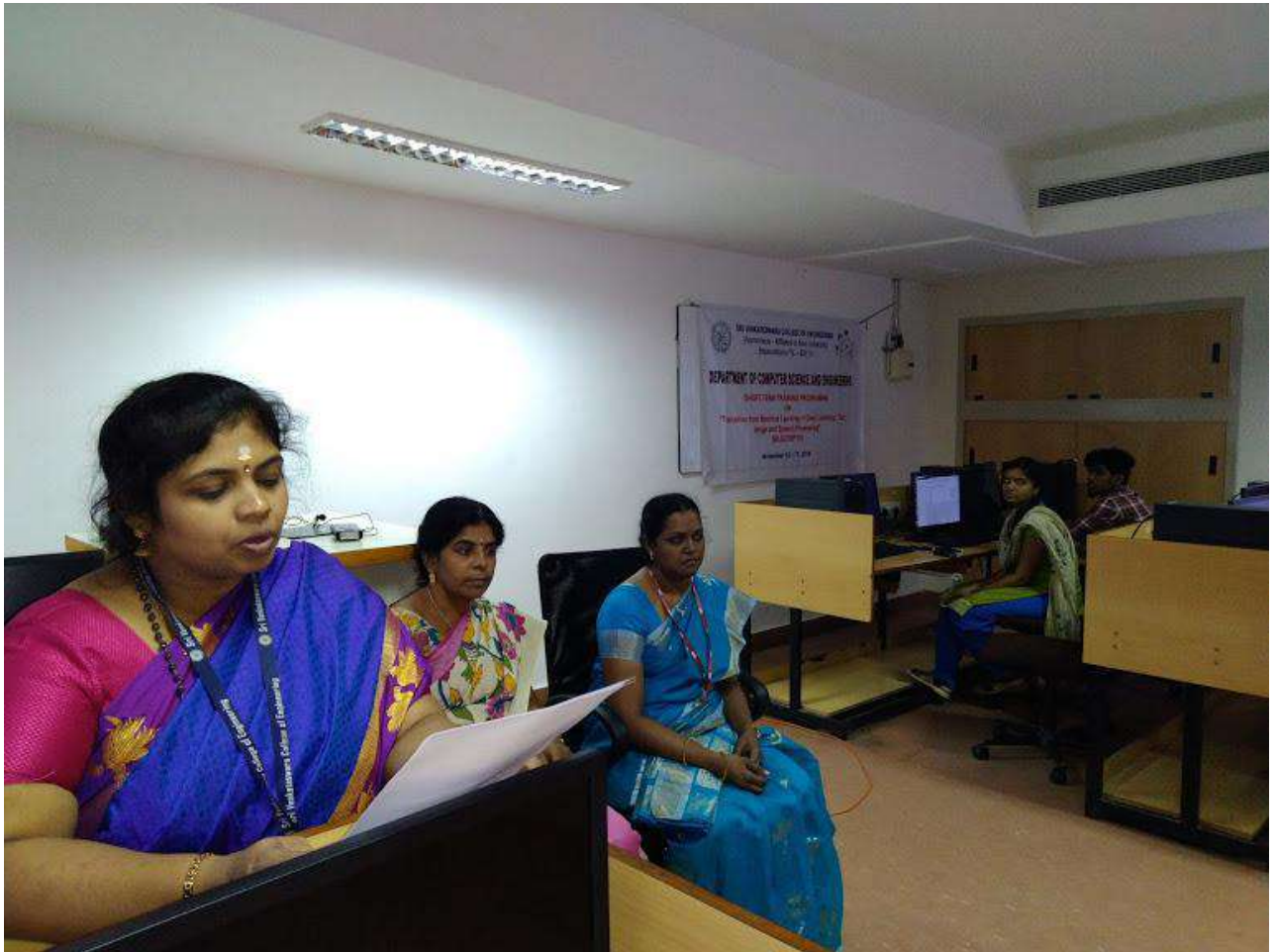


The day started with a lecture session on "Introduction to Speech Processing" by Dr. N. Sripriya. She explained the importance of Speech for Human-Computer interaction, Speech Production mechanism and Classification of Speech Sounds. She also explained about the feature extraction mechanism in speech.

Session 2 was a hands-on session on "Speaker Recognition - Identification and Verification" by constructing a simple neural net with Keras using Librosa which is an open source software package for music retrieval systems.

Session 3 was a hands-on session on "Speaker recognition using GMM and CNN" by Dr. B. Bharathi, Asso Prof/CS. She taught about data distribution, Gaussian Mixture Model (GMM) and Speaker Identification tasks. A Convolutional Neural Network for Speaker recognition adopting Gaussian Mixture Model was built using the following packages – Librosa for feature extraction, Scikit-learn for GMM modeling and performance analysis and Keras with TensorFlow.

The hands-on training helped the participants to build simple and deep neural networks using Keras for Speech recognition.
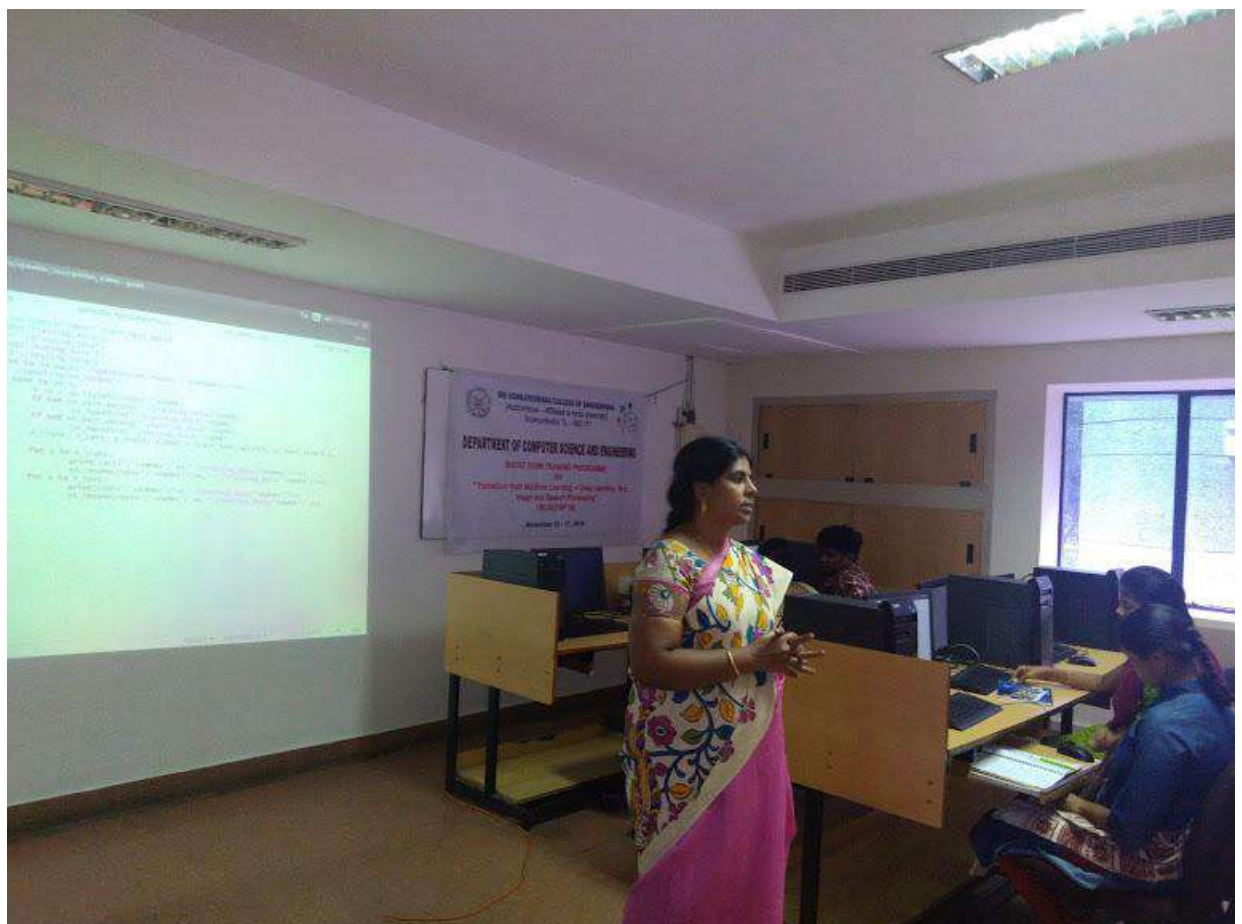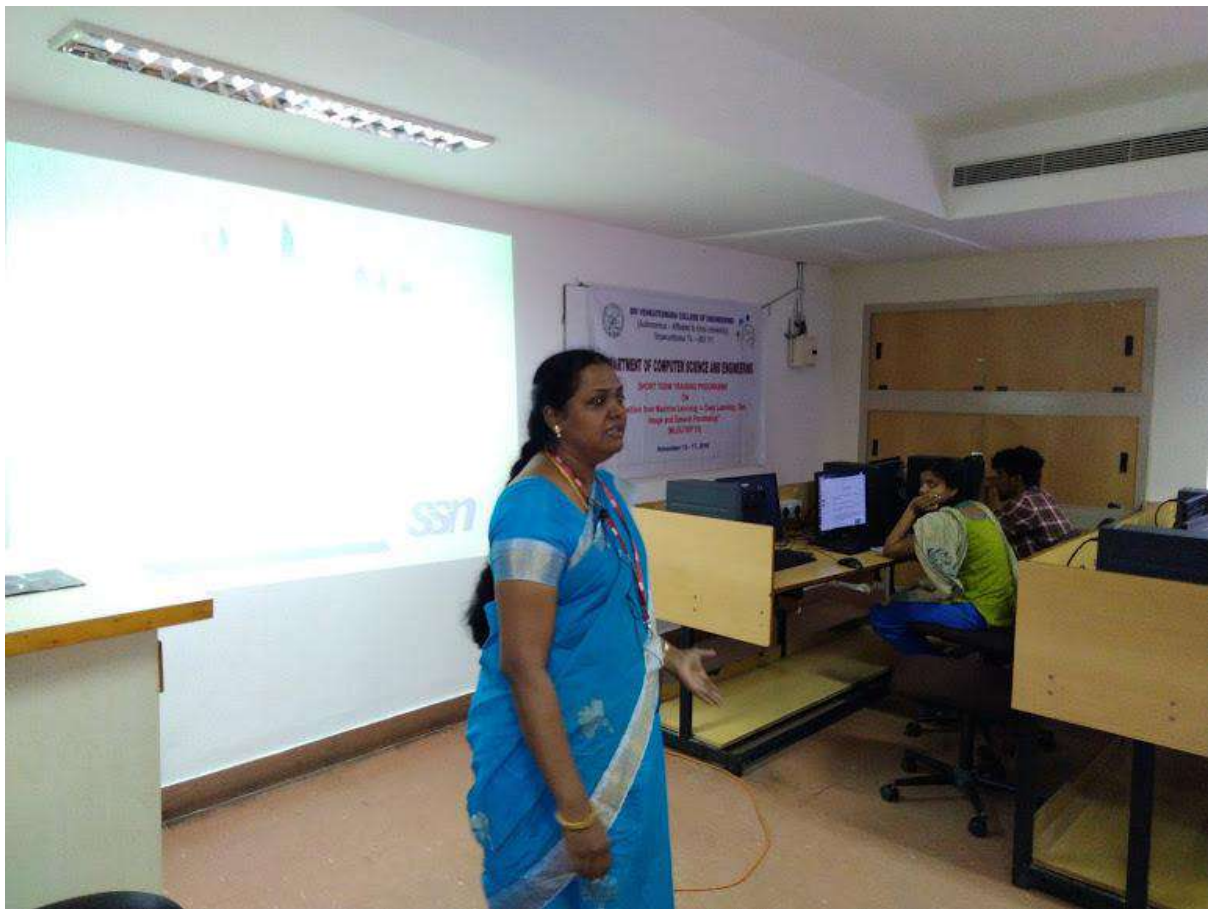
# Day 6: November 17,2018

Dr. R.Jayabhaduri introduced the resource persons Mr. V. Priyesh, an alumnus of SVCE (2013 – CS Batch) and MS Research scholar, CSE department, Project Associate, Robert Bosch Centre for DS & AI, IIT-M and Ms. Preksha Nema, a Ph D research scholar, Robert Bosch Centre for DS & AI, IIT-M.



Mr. V. Priyesh delivered a talk on "Graph Convolution Architectures" during first session. In his lecture, Mr. V.Priyesh talked about Success stories of Deep learning, Deep learning on Regular structures and Success stories of Convolutional Neural Nets. He explained Graph Convolutional Networks with suitable illustrations. He introduced about HOPF : Higher Order Propagation Framework, Graph Kernels and Scalability Analysis for large graph datasets. He stated clearly the research issues and challenges in graphs.

During second session, Ms. Preksha Nema delivered a talk on "Generating Natural Language Descriptions from Structured Data". She explained about Neural Encode-Attend-Decode framework for Hindi and English statements. She also addressed various applications of Natural Language Processing.



Ms. Preksha illustrated Natural Language Generation for tabular data in Weather domain using WeatherGov dataset which consists of 25000 training instances, 3528 test instances and a vocabulary consisting of 340 tokens from summaries. She also discussed about Mixed Hierarchical Attention based Encoder-Decoder approach.

Both resource persons delivered their lectures from research point of view.
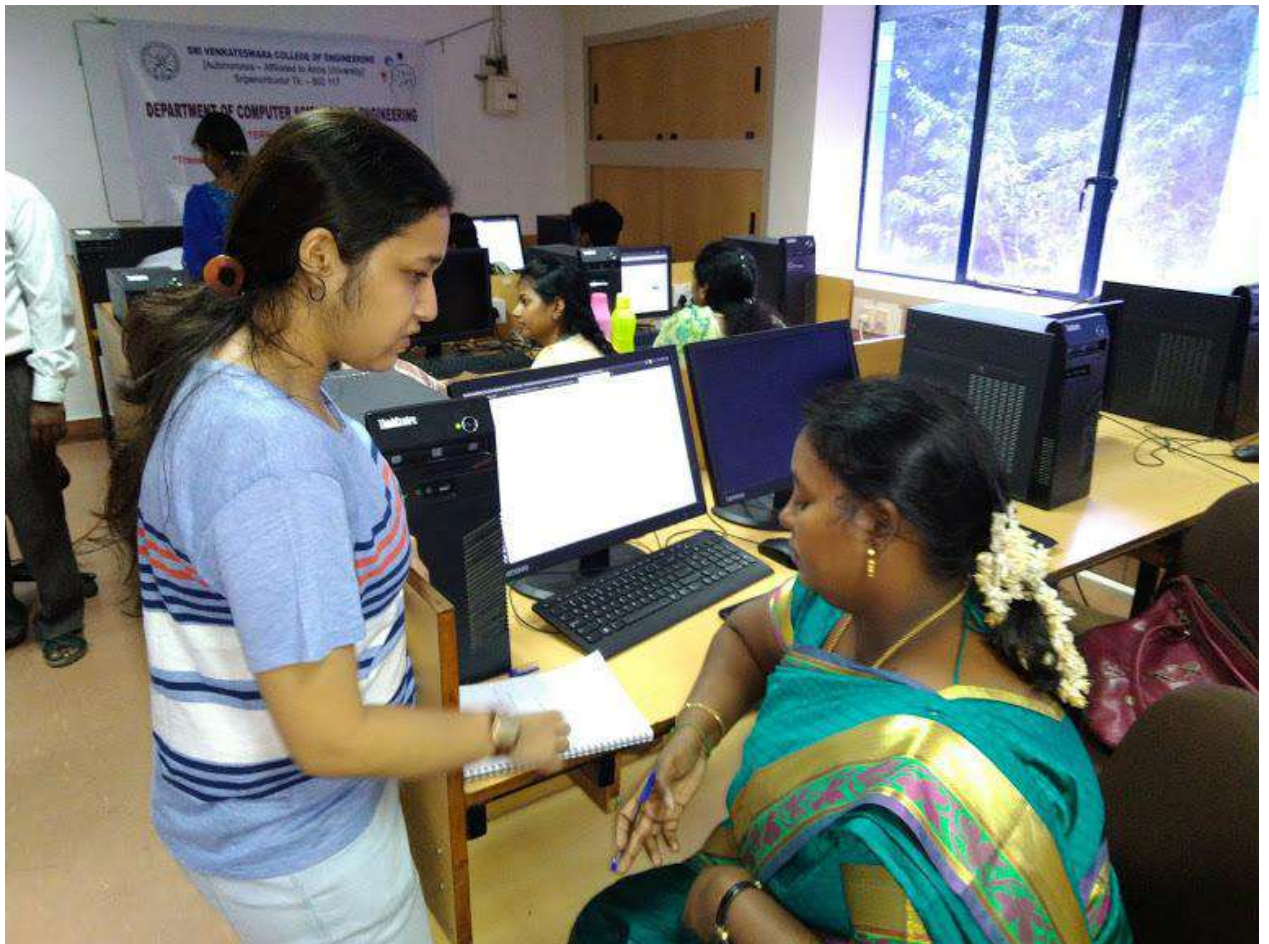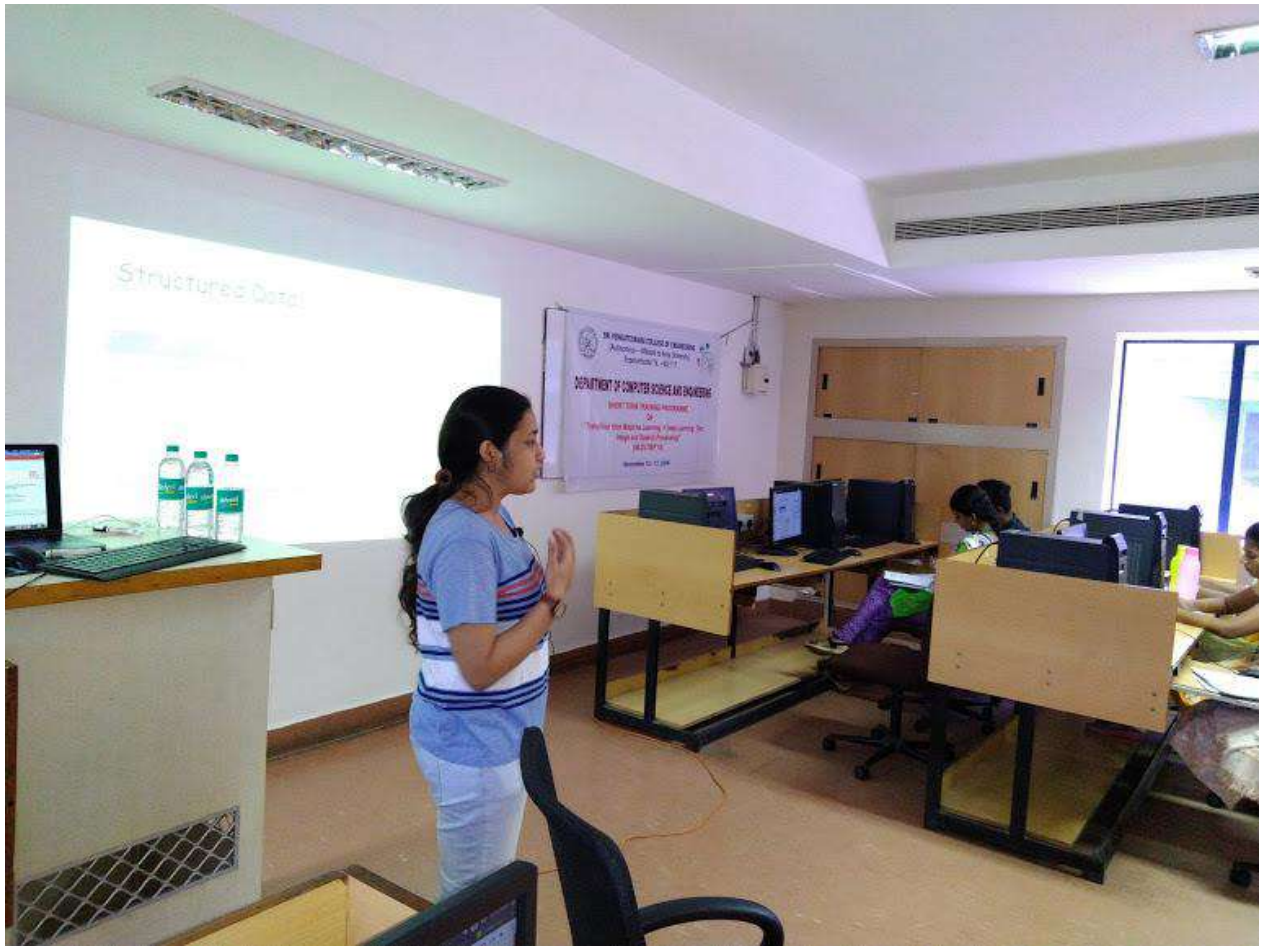
The Short Term Training Programme MLDLTISP'18 attracted a heterogeneous group of 43 participants that encompassed Faculty members from other institutions and SVCE (CS, IT, EC, AM and Mech), Postgraduate students of CSE and research scholar from our institute.

**Participant details : Total -  43**

| S.No | Category | No of participants | Name of the Institution |
|------|----------|--------------------|-------------------------|
| 1 | Faculty (External) | **3** | 1. St. Joseph College of Engineering, Sholinganallur (2) |
| | | | 2. Jeppiaar Maamallan Engineering College          (1) |
| 2 | Faculty (Internal) | **34** | Sri Venkateswara College of Engineering |
| 3 | Research Scholar | **1** | Sri Venkateswara College of Engineering |
| 4 | PG Students | **5** | Sri Venkateswara College of Engineering |
| | **Total** | **43** | |

The Short Term Training Programme was well received and appreciated by all participants. Participant evaluation forms were issued to obtain feedback.

Dr. R. Anitha delivered valedictory address for the programme.
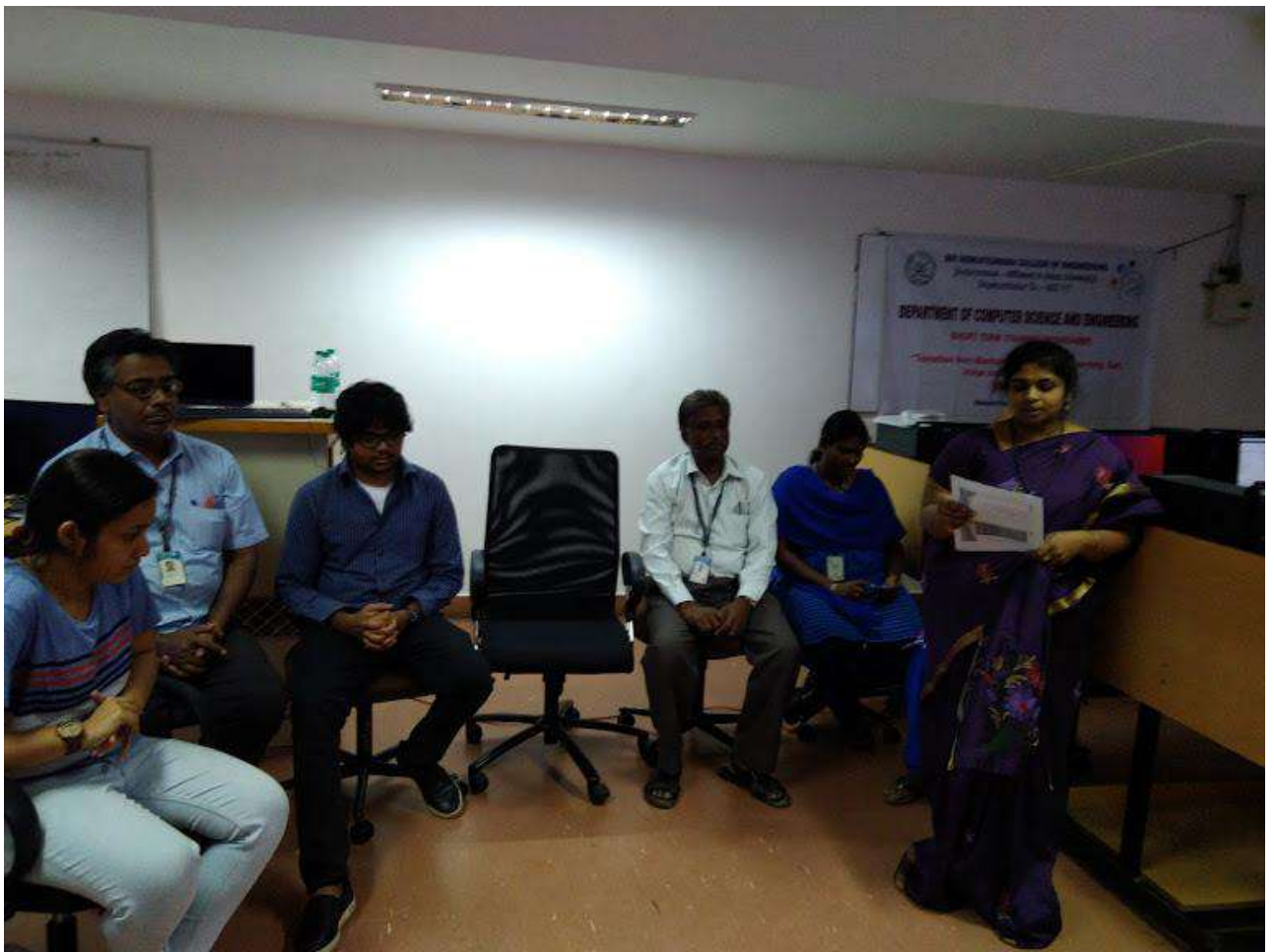
Participants of the programme share their feedback.

Dr. R. Anitha distributed participation certificates and dvd containing software, resource materials of all lectures and datasets used for hands-on training to all participants.

Dr. R. Jayabhaduri delivered vote of thanks.

# STTP MLDLTISP18 Photos

The photos of the STTP can be accessed from the links given below

Day 1 (Nov 12,2018) Photos
https://photos.app.goo.gl/S4Z6bHpCrXfy1zAY8

Day 2-6 (Nov 13-17,2018) Photos
https://photos.app.goo.gl/Bxg1UFvaMFKZjmBc9

# APPENDIX

# A. Resource Person Profile

**Short Term Training Programme on**

**"Transition from Machine Learning -> Deep Learning: Text, Image and Speech Processing"**
**November 12-17, 2018**

**Profile of Prof. Dr. C. Aravindan**

**Chandrabose Aravindan** is a Professor of Computer Science and Assistant Director (School of Advanced Software Engineering) at SSN College of Engineering, Chennai, India, since July 2002. He received his B.E. degree with honors in Computer Science and Engineering from National Institute of Technology, Trichy, India, in 1986 and M.E. and Ph.D. degrees in Computer Science from Asian Institute of Technology, Bangkok, Thailand, in 1990 and 1995, respectively. His post-doctoral research was with the University of Koblenz, Germany, during 1995-1997, where he worked as a Research Scientist on a funded project in the area of disjunctive logic programming. He has been in academia as a professor of Computer Science since 1998.

Aravindan is a member of the Machine Learning Research Group of SSN and his research interests include machine learning and pattern recognition, logic programming and formal methods, and high-performance computing. Twelve research scholars have already completed their PhD under his supervision and he is currently guiding one more scholar. Aravindan has completed five funded research projects, and has published about 50 papers in international journals and conferences. He is currently a Co-investigator of a project on Deep Learning for Stenosis Detection, Funded by the SSN Institutions, Chennai, India. (2018 – Ongoing)

Aravindan is a member of several professional bodies such as ACM, IEEE, IEEE Computer Society, Computer Society of India (CSI), and Indian Society for Technical Education (ISTE).

## Research Citations

1. Author Page at ACM Digital Library
2. DBLP: Chandrabose Aravindan and C. Aravindan
3. Scopus:  Author ID: 6602344663 (free preview)
4. ORCID: 0000-0002-9025-4009
5. ResearcherID: Q-1046-2015
6. Profile at Research Gate
7. Profile at Google Scholar

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### Profile of Dr. R.Jayabhaduri

Dr. R.Jayabhaduri is an Associate Professor of Computer Science at Sri Venkateswara College of Engineering, Chennai. She received her B.E. and M.E. degrees in Computer Science and Engineering from Mepco Schlenk Engineering College, Sivakasi, India, in 2001 and 2003, respectively. She received her Ph.D. degree in Computer Science and Engineering from Anna University, Chennai, in 2016. She has been in academia since May 2003.

Her research interests include Single-objective optimization, Artificial Intelligence, Evolutionary Algorithms, Soft Computing techniques. Her teaching interests are Artificial Intelligence, Information Retrieval, Cryptography and Network Security. She has published 3 papers in journals and 2 papers in international conferences.

She is a life member of ISTE.

She has organized and has been part of conducting several workshops and Faculty Development Programmes at SVCE.

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### Profile of Ms. Aditi Prakash

Ms. Aditi Prakash is an alumnus of SVCE. She has actively been involved in the Computer Science Field. She has participated and won several hackathons, one of which is the Smart India Hackathon, organized by the Government of India. Her interest areas are in Machine Learning and the Internet of Things. She presented an academic poster on 'Security in Internet of Things' at the Grace Hoppers Women in Computing, USA in 2016. She has worked with Semantic Web Technology at an internship in IIT-Madras. In 2017, she internet at a start-up - Komparify.com working on NLP techniques for text summarization of movie reviews. Currently, as a Data Science intern at Screel Labs, she works with Image Classification using CNN.

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### Profile of Dr.J.Bhuvana

J Bhuvana is an Associate Professor in the Department of Computer Science and Engineering with 16 years of experience in teaching. Before joining SSN in 2006, she worked as Assistant professor in AVC College of Engineering for 8 years. She received her Ph.D from Anna University, Chennai in 2015, with master degree, ME in CSE from Annamalai University, Chidambaram in 2004 with First class and Distinction. She completed BE in CSE from University of Madras in 1998.

Her research interests include Multi-objective optimization, Memetic Algorithms, Evolutionary Algorithms, Soft Computing techniques. Her teaching interests are network security, information security and cryptography. She has published 3 papers in journals and 2 papers in international conferences.

She is a life member of ISTE and member of IEEE.

She has organized and has been part of conducting several workshops, Faculty Development Programmes and National and International conferences at SSN and also at AVCCE.

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**Profile of Dr.P.Mirunalini**

**Dr. P. Mirunalini**, Associate Professor in the Department of Computer Science and Engineering has 4 years of Industrial Experience and 11 years of teaching and research experience. She received her Ph.D from Anna University, Chennai in 2016. She obtained her Master's degree in Multimedia Technology with First class and Distinction from College of Engineering, Guindy in 2005. She completed BE in CSE from University of Madras in 1998.

In her doctoral research, she worked on Medical Image Processing. Her research interests include machine learning and pattern recognition, Image processing, analysis and reconstruction for digital and medical images. She has guided projects for under graduate and post graduate students in the above areas. She has eleven publications in International and National Journals and conferences.

She has organized faculty development programs in image processing and pattern recognition. She has attended many workshops, seminars and quality improvement programmes.

She is a life member of the professional bodies CSI and ISTE, and a member of the Machine Learning Research Group of SSN.

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**Profile of Dr.D.Thenmozhi**

Dr. D. Thenmozhi, Assistant Professor in the Department of Computer Science has 21 years of teaching and research experience. She received her B.E degree in Computer Science Engineering from Madras University, and M.E in Computer Science and Engineering from Anna University. She has completed her PhD in Natural Language Processing in Anna University, Chennai.

Her area of interest includes Natural Language Processing, Information Retrieval, Artificial Intelligence and Data Mining. She has guided a number of U.G and P.G projects in the area of NLP, web applications, data mining, ontologies and information retrieval including personalization and optimization. She has published 25 research papers in the International Journals and Conferences. She has published 3 books.

She received Best Teacher award of SSN Institutions 2 times. She also received Chairman's Silver medal and University Rank in her post graduation.

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**"Transition from Machine Learning -> Deep Learning: Text, Image and Speech Processing"**
**November 12-17, 2018**

**Profile of Mr.B.Senthilkumar**

Mr. B. Senthil Kumar received the B.E. degree in Computer Science and Engineering from Bharathidasan University, Tiruchirapallai, India, in 1999, and the M.E. degree with distinction in Computer Science from Anna University, Chennai, India in 2005. He has been in academia as a Assistant Professor in Computer Science since 2005. He is a member of the Machine Learning Research Group of SSN and is one of the member in organizing the series of Workshop on Natural Language Processing at SSN from 2013.

His research interests include sub task of Natural Language Processing such as Named Entity Recognition, Semantic Role Labeling and Machine Learning.

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**Profile of Mr. Bharat Goel**

Mr. Bharat goel is an alumnus of SVCE. He has actively participated in all fields of Computer Science. He has participated and won several hackathons. His area of interest is deep learning and IOT. Bharat represented SVCE at the IEEE Singapore autonomous underwater vehicle (SAUVC) at the Singapore polytechnic as part of the software faction . He has worked on 3d printers as having built one at his internship at precious 3D. Worked in Bangalore based startup where he worked with IoT based medical apparatus. He is currently working at Chennilabs as a software developer, crawling, processing and cleaning data.

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**Profile of Ms. Dipika Rajesh**

Ms. Dipika Rajesh is an alumnus of SVCE whose interest and research primarily lies in the fields of Deep Learning and Artificial Intelligence. She has participated and won several Hackathons and Competitions. As an integral part of the Software Track of The International Genetically Engineered Machine competition held in MIT Boston, she helped developed a MultiLayer Perceptron. The SVCE-iGEM team went on to win the Silver Medal. She has also written and published an article on "Artificial Intelligence in Health Care" in the Association of Computing Machinery's (ACM) magazine. Currently she is working on Natural Language Processing and Data Visualization at Chennai-based AI startup - Mad Street Den.

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**Profile of Dr. B.Bharathi**

**Dr. B. Bharathi**, Associate Professor in the Department of Computer Science and Engineering has more than 17 years of teaching and research experience. She received her PhD. in Computer Science (2014) from Anna University, Chennai, M.E. Computer Science & Engineering (2006) from SSN College of Engineering, Anna University, Chennai, and B.E Computer Science & Engineering (1998), from Arulmigu Meenakshi Amman College of Engineering, University of Madras.

In her doctoral research, she was working on speaker recognition task. She guided the projects in the areas of isolated and continuous speech recognition, multilingual speech recognition, speech emotion recognition, natural language processing, speech synthesis, speaker verification / identification, machine Translation, discriminative training techniques, and speaker clustering techniques for Under Graduate and Post Graduate students.

She has organized a faculty development programme on "Theory of Computation" and AICTE sponsored Staff Development Programme on "Recent Trends in Machine Learning and pattern Recognition". She also organized a National level workshop on "Recent trends in Text and Speech Processing". She has attended many workshops, seminars and quality improvement programmes. She authored the several books including Object oriented programming, Data structures, Operating systems, Compiler Design and Data base management systems.

She has received "Best Teacher Award" from SSN College of Engineering for the period 2010-2011 & 2012-2013. She is a life member Computer Society of India.

She is a co-investigator of the external funded project titled "Speech enabled interactive enquiry system in Tamil". Funded by: Tamil Virtual Academy, Project amount Rs. 9.52 Lakhs. Duration: 9 months

She has published about 30 research papers in her area of research both international journals and conferences.

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### Profile of Dr. N.Sripriya

**Dr. N. Sripriya** is an Associate Professor in the Department of Information Technology. She has 16 years of teaching experience, including 8 years of research experience in the field of Speech Processing. She received her B.E. degree in Computer Science and Engineering from University of Madras in 2000 and M.E. and Ph.D. degrees in Computer Science and Engineering from Anna University, Chennai, in 2005 and 2016, respectively. She started her career in the teaching field as a lecturer in SSN in the year 2000.

She is a member of the Speech research group of SSN and Indian Society for Technical Education (ISTE). Her research interests include speech signal processing, glottal source estimation, pattern recognition techniques. She has more than 7 publications in reputed National and International Conferences and Journals.

She has received Best Teacher Award in SSN College of Engineering for the year 2008-2009.

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**Profile of Mr.V.Priyesh**

Mr. V Priyesh is an alumnus of SVCE from 2013 batch. He is currently a Project associate at the Robert Bosch Centre for Data Science and AI, IIT M. He was the recipient of the award for the best penultimate year student here in SVCE. He has been into research right from his second year. He has worked on grid computing and membrane computing during his early B.E days and then was introduced to Machine learning in his 3rd-year summer internship at IIT Madras under Prof. Balaraman Ravindran.

After his B.E he joined Ericsson R&D as a Research Intern, where he worked on learning on heterogeneous graph data and telecom data analytics. Post that he joined IIT M as a Project associate on a project from KLA Tencor, where he worked on identifying defects in semiconductor chips under high class-imbalance setup. Then, he joined MS by Research Program at IIT Madras. His primary research at IIT-M evolves at the intersection of deep learning and social network analysis. He leverages graph theory and social network analysis tools to build deep learning architectures that can handle structured data.

He has 1 patent, 2 published papers and 3 workshop papers in top-tier conferences. Overall, he has 5+ years of experience working in Machine learning across a variety of problems ranging from recommender systems, multi-view learning, semi-supervised learning, class imbalance problems, deep learning, social networks, etc. He also has limited exposure in Deep learning for CV with his experience in his own ex-startup, FadStreet, an AI first fashion startup. Herein, he will present on one of his research topics, Graph Convolutional Networks, a new DL paradigm for graph data.

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**Profile of Ms. Preksha Nema**

Ms. Preksha Nema is currently pursuing my Ph.D. under Dr. Mitesh M. Khapra and co-guided by Dr. Balaraman Ravindran at IIT Madras. She joined IIT Madras as an M.Tech in July 2015, and then converted to Ph.D. programme in March 2017. Her area of research is Deep learning for NLP. Currently her work is focussed on modelling better attention mechanism techniques for different Natural Language Generation tasks.

**Awards**

She has received Google India Ph.D. Fellowship, 2017 award.

**Internship**

She has completed an internship at Software Engineering Intern at Google, Zurich : 04/June/2018 - 14/September/2018.

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### Profile of Ms. N. Rajeswari

Ms. Rajeswari N is working as a faculty in SVCE since 2001. Her intrigues are in machine learning and deep learning for sequential data. She has published many papers in conferences and reputed journals. This includes 1 publication in IEEE transactions in neural systems and rehabilitation engineering and in Elsevier biocybernetics and biomedical engineering. Her teaching interests are subjects like data structures, programming in C++, design and analysis of algorithms.

# B. STTP Registration Form

**SRI VENKATESWARA COLLEGE OF ENGINEERING, SRIPERUMBUDUR Tk – 602 117**
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**REGISTRATION FORM**

Name of the Applicant   : _____

Category   :  ☐ Faculty            ☐ Research Scholar

Qualification   : _____

Designation   : _____

Accommodation Required   :  ☐ Yes            ☐ No

Area of Research   : _____

Department   : _____

Institution   : _____

E-Mail   : _____

Mobile   : _____

Address   : _____

_____

**PARTICIPATION FEE PAYMENT DETAILS**

DD No   : _____

Amount   :`_____

Bank   : _____

Date   : _____

**DECLARATION**
I hereby declare that the details furnished are true to my knowledge and I agree to abide by the rules and regulations governing the Short Term Training Programme.

Signature of the participant                    Signature of the Head of Institution / Department
                                                                    (With seal)

Place   :
Date   :

# C. Attendance Sheet

# D. Participants Evaluation Form