



## **MASTeR Brain AI – Leading India in AI**

### **Artificial Intelligence and Deep Learning Workshop**

#### **ABOUT MASTER BRAIN AI:**

India has aspiring young students in thousands of technical institutions in the country. Due to lack of quality faculty and curriculum design issues many of these students are not able to get access to latest skill sets required by the industry. 2-Tier and 3-Tier Institutions are also looking for hand holding to get started in the latest areas of research and to work with industry in their area.

**M.A.M. College of Engineering and Technology**, has been selected as the **Zonal lead** institution for the nationwide initiative "**AI and Deep Learning Skilling and Research**" project by University college, London, Brunel University, London and Bennett University, India. MAMCET is one among the other 100 institutions in the country and 5 institutions from Tamilnadu. Dr. M. A. Maluk Mohamed, Director and Correspondent is the Project Lead. MAMCET as a Lead Zonal Institution has huge offerings from the Bennett University. This collaboration makes us privileged to contribute in the progress of the higher education system of the nation, by occupying the leadership position in the Machine Learning Research in the region. It will expose the faculty and students to the different new ideas, innovations and unexplored dimensions. We are glad to offer workshops for skilling faculty and students in AI.

#### **OBJECTIVES OF MASTER BRAIN AI:**

1. To make cutting edge skills and supercomputing infrastructure available to the wider community of academicians and researchers through a thoughtfully created network of approximately 10 collaborators and 100 lead institutions across India.
2. To initiate, sustain and nourish research groups in Artificial Intelligence. Based on the additional resource commitments by respective institutions, some of them can grow as a good research center.
3. To motivate the learner community for exploiting the potential of start-ups and innovations in this area and connecting them with the real-life problems of industry.
4. Overall it will enhance the content, quality, capacity and collaboration of Indian Engineering education ecosystem.

#### **ABOUT DEEP LEARNING:**

Machine learning uses computers to run predictive models that learn from existing data to forecast future behaviors, outcomes, and trends. Deep learning is a sub-field of machine learning, where models inspired by how our brain works are expressed mathematically, and the parameters defining the

mathematical models, which can be in the order of few thousands to 100+ million, are learned automatically from the data.

Deep learning is a key enabler of AI powered technologies being developed across the globe. In this deep learning course, you will learn an intuitive approach to building complex models that help machines solve real-world problems with human-like intelligence. The intuitive approaches will be translated into working code with practical problems and hands-on experience. You will learn how to build and derive insights from these models using Python Jupyter notebooks running on your local Windows or Linux machine, or on a virtual machine running on Azure. Alternatively, you can leverage the Microsoft Azure Notebooks platform for free.

Deep Learning has received a lot of attention over the past few years and has been employed successfully by companies like Google, Microsoft, IBM, Facebook, Twitter etc. to solve a wide range of problems in Computer Vision and Natural Language Processing. In this course we will learn about the building blocks used in these Deep Learning based solutions. Specifically, we will learn about feedforward neural networks, convolutional neural networks, recurrent neural networks and attention mechanisms. At the end of this workshop faculty and students would have knowledge of deep architectures used for solving various Vision and NLP tasks.

#### **COURSE COVERAGE:**

1. Foundational Concepts and Machine Learning Basics
2. Deep Learning Fundamentals, Models and Intuition
3. Convolutional Neural Networks (CNN)
4. Recurrent Neural Networks (RNN)

#### **OUTCOMES OF THE COURSE:**

- The components of a deep neural network and how they work together
- The basic types of deep neural networks (MLP, CNN, RNN, LSTM) and the type of data each is designed for
- A working knowledge of vocabulary, concepts, and algorithms used in deep learning  
How to build:
  1. An end-to-end model for recognizing hand-written digit images, using a multi-class Logistic
  2. A CNN (Convolution Neural Network) model for improved digit recognition
  3. An RNN (Recurrent Neural Network) model to forecast time-series data
  4. An LSTM (Long Short Term Memory) model to process sequential text data



**PREREQUISITES:** Basic knowledge of Linear Algebra, Probability Theory and python programming.

It would be beneficial if the participants have done a course on Machine Learning.

**DURATION:** Two Days (Any Friday and Saturday)

**NO. OF PARTICIPANTS:** 45-60 Per Workshop

\* Final Exam is mandatory for Certification

### **FOR DETAILS CONTACT :**

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### **About MASTeR**

MASTeR Group of Institutions which comprises of,

- ❖ M.A.M. College of Engineering and Technology (2008),
- ❖ M.A.M. School of Architecture (2010) and,
- ❖ M.A.M. School of Business (2010).

was originally part of M.A.M. Group of Institutions (10 institutions), which was established by **MALUK EDUCATIONAL HEALTH and CHARITABLE TRUST (1993)**. The 10 institutions of the group together are catering currently to nearly 10000 students, at Siruganur, 23 Km away from Tiruchirappalli on the Trichy – Chennai Trunk Road. The education journey of the group started on 10th Feb 1999 with 77 students and 17 staff on rolls by Dr. M.A. Maluk Mohamed, who himself with his academic qualification was the head of the institutions since the inception.

**“We cannot always build the future for youth, but we can build our youth for the future.”**

These words by Franklin D. Roosevelt utterly describe our aim at MASTeR. In a globalized, market driven and interconnected world, both individuals and institutions are attempting to make a cultural impact. The need of the hour is to produce men and women who are visionary, dynamic and innovative.



Today's corporate world demands individuals who are not only skilled but are innovative thinkers and are confident to face everyday challenges. The academic teams of MASTeR are ready to work along with young minds to offer the best knowledgeable education for holistic development. It is just not the university curriculum and the class room teaching which makes all intellectual citizens. Understanding the need we are committed in making all intellectually adept & socially and technically sound through brain storming sessions, seminars, discussions, case studies, project presentations and other events. These activities would promisingly strengthen the overall knowledge and skills of students who had trusted and joined us. Our activities offer many opportunities for an active participation. We encourage our students to become active members of the various literary and other clubs, sports etc., that interest them.

MASTeR is committed to provide an environment of bipolar growth- enhancing not only the employability skills but also the entrepreneurial skills, to enable our graduates to become potential Strategists/ Managers with innovative skills of job creation. Simply speaking, opportunities today are sure for those who aim at achieving excellence. Ambition is the fuel of achievement. We, at MASTeR, are keen at inculcating qualities such as leadership, management, communication skills and professional ethics in our students which will help them develop not only as perfectly trained technocrats but also as dexterous entrepreneurs.