Artificial Intelligence & Machine Learning

Condensed Introductory Workshop Blending Theory, Practice, and Applications of AI and ML

E-Vidya

AI & Machine Learning

| **e-vidya.in** | *Breakthrough Learning in Deep Technologies* |

Supercharge your technology career with the E-Vidya Intensive Advanced Learning Workshops for global success in the 2020s

In Cooperation with Open-source Development and Learning Communities and Partners around the World

Workshop Content

- Rapid and lucid introduction to the broad spectrum of topics in AI and ML including the following topics:

- *Introduction to AI – Definition, history, evolution, early AI programs, the AI Winter, resurrection, current upsurge and market hype*

- *Mathematical background, theoretical computer science background, probability theory and statistical techniques*

- *Models and algorithms for knowledge representation and reasoning, clustering and segmentation, principal component analysis, pattern recognition*

- *Search and optimization, planning and scheduling, decision systems, expert systems, reasoning with uncertainty, fuzzy systems*

- *Genetic algorithms and evolutionary computation*

- *Foundations of Machine Learning – supervised and unsupervised learning, reinforcement learning*

- *Neural networks and systems – biological brains, artificial neural networks (ANNs), perceptron, back-propagation algorithm, advanced neural net models*

- ***Deep Learning** – models, algorithms, and applications, platforms, tools, and APIs*

- *AI applications – Text processing, NLP, signal processing, speech recognition and synthesis, image processing, object recognition, computer vision, video analytics, face recognition, data analytics, time series analytics, robotics, autonomous vehicles*

- *Tools, APIs, platforms – Machine Learning **using Python, Keras, Tensorflow, Theano, Caffe, Chainer***

- *High-performance AI and ML – Use of multi-core CPUs, many-core GPUs, FPGAs, and new generation parallel computing hardware accelerators in AI and ML*

- *Challenges – limitations of AI, ethical AI, explainable AI, dangerous AI, edge AI and IoT, emerging technologies*

- *AI and ML career prospects and job opportunities – AI+ML jobs, broader data sciences and analytics jobs*

Objectives and Take Aways

- To gain broad insight into the AI and ML landscape beyond the market hype

- To gain high level understanding of the architectures, algorithms, platforms, APIs, and libraries for AI/ML solution development, and AI/ML application domains

- To gain pragmatic understanding of career prospects, current and emerging opportunities in AI/ML, and how to prepare for these opportunities

Workshop Structure and Schedule

- ***Condensed workshop** – Total of 9 hours of structured lectures presentations and interactions*

Session	Content
Session 1 3 hours	Introduction, history, definition, AI winter and resurrection, current market hype, theoretical background, models and techniques in algorithmic AI, search and optimization
Session 2 3 hours	Evolutionary computation, genetic algorithms, complex systems, machine learning, neural networks, deep learning, CNN, RNN, LSTM, RL, other types of neural learning networks
Session 3 3 hours	AI and ML tools, APIs, platforms, and applications, challenges and issues in AI, and careers in AI and ML

Who Should Attend

- Working technology professionals, graduating students, team leaders and managers of AI/ML related projects, senior managers and business leaders – anyone seeking a rapid yet lucid overview of all that AI and ML are really about and the professional and business opportunities that AI and ML open up

Background and Prerequisites

- Knowledge of basic undergraduate level science and mathematics, familiarity with core computer science subjects, and programming, development, or other relevant computing industry experience

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Contact E-Vidya: | Email: **e-vidya@e-vidya.in** | Web: **https://e-vidya.in**

TiSRA Terra Incognitus ®
Systems Research Alliance

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About The Instructor

- ***Dr. Chandan Haldar*** is an applied computer scientist and an industry leader with several decades of cutting-edge research, development, and management experience in top academic institutes, global computer corporations, and deep technology start-up ventures

- He is alumni of IIT Kharagpur, IISc Bangalore, and the London Business School, with expertise in AI and ML, Parallel and Distributed Computing, Functional Programming, and Embedded and Edge computing

- Dr. Haldar is CEO of **Morphing Machines** leading the development and market strategy of the path-breaking **REDEFINE™** reconfigurable power-optimizing massively parallel processor SoC platform and data-flow computing driven accelerator for AI/ML and other HPC

- He is also Chief Scientist at ***Terra Incognitus Systems Research Alliance (TISRA™)*** – a private research and development laboratory for deep technologies and breakthrough systems and software solutions

Follow-through Learning

- Continued access to online E-Vidya community forums, and follow-up learning and career evolution resources

- Workshop instructor is available for answering questions and additional follow-up discussion and mentoring on the E-Vidya community forums

- The natural sequel to this Condensed Introductory Workshop in AI & ML is the ***Comprehensive*** *E-Vidya™ Intensive Advanced Learning* ***Workshop on Artificial Intelligence and Machine Learning*** (40–50 hours total)

- The comprehensive workshop covers these topics in depth and includes extensive hands-on sessions on application development in AI/ML using APIs and platforms widely used in the industry globally

About the E-Vidya™ Workshops

- **E-Vidya™** *Intensive Advanced Learning Workshops* are exclusively focused upon select deep technologies that will rule the technology world in the 2020s

- Precise and lucid introductions to the ***core concepts, models, algorithms, and techniques*** of the subject, supplemented by ***hands-on exposure*** to the ***tools, platforms, and APIs*** most widely used in the industry for software and system development

- ***Comprehensive curriculum*** touching all key aspects of the subject, connecting the dots across disciplines

- **Formats:** Condensed deep dive sessions (8–10 hours total – comprising single day-long session or multiple short daily sessions), comprehensive workshops (40–50 hours total), customized workshops of flexible duration

- Longer duration workshops include hands-on software and practical solution development sessions

- Curated by ***authentic expert knowledge*** and ***deep industry experience*** of ***best-in-class instructors***

- Offered through ***face-to-face classroom sessions*** and instructor-led ***live online webinar sessions***

| Currently Available Workshop Subjects |
|---|
| *Artificial Intelligence and Machine Learning* |
| *Quantum Computing – Theory and Application* |
| *Block Chain Technology and Cryptocurrencies* |
| *Digital System Design Using High Level Hardware Description Languages* |
| *Functional Programming – Theory and Practice* |
| *Advanced Programming in Functional Programming Languages {Haskell, OCaml, Rust, Erlang, Clojure)* |
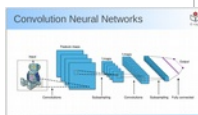
Contents of E-Vidya condensed workshop on AI & ML overleaf   *Brought to you by*

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