भारतीय प्रौद्योगिकी संस्थान दिल्ली
Indian Institute of Technology Delhi

PROGRAMME OVERVIEW:

Join us at IIT Delhi for a beginner-friendly, three-day AI/ML Bootcamp, designed to introduce the basics of Artificial Intelligence and Machine Learning. This intensive program, part of our Continuing Education Programme (CEP), is specially crafted in association with the Yardi School of Artificial Intelligence (ScAI) for enthusiasts eager to master the nuances of AI and ML technologies. Engage in easy-to-understand lectures, interactive live coding, and explore fundamental concepts in a supportive, hands-on learning environment.

PROGRAMME OFFERED BY CONTINUING EDUCATION PROGRAMME (CEP), IIT DELHI

PROGRAMME HIGHLIGHTS:

■ Zoo of DL Architectures:

Special focus on the “Zoo of Deep Learning Architectures” exploring various models and their applications.

■ Expert Talks:

Expert-led workshops on modern deep learning, neural networks, and data analytics.

■ ML Insights:

Mathematical insights on AI/ML foundations, advanced algorithms, and their real-world applications.

■ Live Coding Sessions:

Interactive live coding sessions for hands-on experience in Python.

WHY BOOTCAMP MATTERS:

Globally, the adoption of Artificial Intelligence (AI) and Machine Learning (ML) technologies is driving innovation, enhancing efficiency, and solving complex problems in healthcare, finance, transportation, and beyond, making knowledge in these fields essential for professionals seeking to remain competitive. Bootcamps designed for beginners and intermediates offer an accelerated

pathway to gaining crucial skills in AI and ML, bridging the gap between traditional education and the dynamic demands of the tech industry. By offering practical, hands-on experience, these bootcamps prepare participants not just to participate in the future of work, but to shape it, highlighting the significant role they play in the current technological revolution.

PROGRAMME OUTCOMES:

1. Enhanced Technical Proficiency: Participants master AI/ML concepts, readying them for roles like data scientists and AI researchers.
2. Career Advancement Opportunities: Graduates enhance their career prospects in tech, securing positions in cutting-edge fields.
3. Innovative Problem-Solving Skills: Learners develop the ability to solve complex problems with innovative, data-driven solutions.
4. Networking and Community Building: Bootcamps foster a valuable professional network, facilitating collaboration and opportunities.
5. Real-World Project Experience: Hands-on projects provide real-world experience, making participants job-ready with practical skills.

PROGRAMME CONTENT:

Day 1

1. Linear Algebra for Machine Learning, Vectors and Matrices, Vector Space, Subspace
2. Optimization Techniques - Convex Optimization/Gradient Descent Techniques
3. Least Squares solution, Simple Linear Regression, Multiple Linear Regression

Day 2

1. Model Selection, Regularization, and Bias-Variance Trade-off
2. Classification using Logistic Regression, Decision Trees, Random Forests
3. Support Vector Machines (SVM), Multi-Class Classifiers
4. Neural Networks: Fundamentals and Feedforward Network

Day 3

1. Convolutional Neural Networks (CNN), Generative Adversarial Networks (GANs),
2. Graph Neural Networks (GNNs)
3. Introduction to Generative AI and Transformers

Note: This is an indicative list of the modules, projects, and tutorials, tools and is subject to change as per IIT Delhi's discretion.

PROGRAMME COORDINATOR:

DR. SANDEEP KUMAR

Assistant Professor,

Department of Electrical Engineering & Yardi School of Artificial Intelligence, and Bharti School of Telecommunication Technology and Management,
Indian Institute of Technology Delhi

Dr. Sandeep Kumar is an assistant professor in the Department of Electrical Engineering, Yardi School of Artificial Intelligence, an associate faculty at Bharti School of Telecommunication Technology and Management at the Indian Institute of Technology Delhi (IIT Delhi) and heads the Machine Intelligence Signals and Networks (MISN) lab at IIT Delhi. In his academic journey thus far, he has received the DST Inspire Faculty Fellowship Award, 2019–2024, and TCS doctoral fellowship 2015–2017. His research focuses on the coherent interaction of machine learning, graphical models, statistics, and deep learning for developing tools and methods that help solve complex problems arising from data ubiquity.

The contributions from his research work have been published in reputed machine learning conferences and journals, including NeurIPS, JMLR, and IEEE Transactions. At IIT Delhi, he has taught several courses in the area of Machine Learning, such as Mathematical Foundations for Machine Learning, Advanced Machine Learning, Software Fundamentals, and Optimisation Methods.

PROGRAMME COORDINATOR:

DR. MANABENDRA SAHARIA
Assistant Professor,
Department of Civil Engineering, and
Yardi School of Artificial Intelligence,
Indian Institute of Technology Delhi

Dr. Manabendra Saharia is an Assistant Professor in the Department of Civil Engineering and an Associate Faculty of the Yardi School of Artificial Intelligence at the Indian Institute of Technology Delhi. Previously, he worked in the hydrology labs of the NASA Goddard Space Flight Center and the National Center for Atmospheric Research (NCAR). Dr. Saharia received his PhD in Water Resources Engineering from the University of Oklahoma. At IIT Delhi, his HydroSense research lab focuses on developing physics and AI/ML-based techniques to monitor and mitigate natural hazards such as floods and landslides.

He has been recognized for his scientific contributions, having received Young Scientist awards from both the National Academy of Sciences, India (NASI) and the International Society for Energy, Environment and Sustainability (ISEES). He is also a Visiting Scientist to NCAR (USA) and a Global Guest Professor to Keio University (Japan).”

PROGRAMME CERTIFICATE:

Programme Code: .....

Indian Institute of Technology Delhi

HAUZ KHAS, NEW DELHI- 110016

Department/Centre/School of .....

Continuing Education Programme

On

Title of the Programme

This is to certify that

Mr./Ms. **Name Of The Participant**

has attended the certificate programme on **"Title of the Programme"** held from ..... to ..... by the Indian Institute of Technology Delhi.

Prof.
Programme Coordinator

Prof.
Head of the Department

Prof.
Head/Associate Head, QIP/CEP

- Achievement of a certificate requires a minimum of 50% in the evaluation elements and consistent attendance of 75% in lectures and laboratory
- Maximize your learning journey by actively participating in the sessions. Your dedication is encouraged for an enriched learning experience
- The organizing department of this Yardi School of Artificial Intelligence (ScAI), IIT Delhi
- Only an *e-certificate will be provided, and it will be issued by CEP, IIT Delhi

PROGRAMME DETAILS:

Program Schedule:

- Duration: March 15 - 17, 2024
- Orientation: March 15, 2024
- Mode of session: Physical (In person only)
- Last Date: Mar 10th, 2024

Eligibility:

- Open to professionals, academics, and students with a keen interest in AI/ML. Limited seats are available.

Evaluation:

- The evaluation criteria will be determined by the faculty.

Registration & Payment:

- **Participation fees accepted via SBI Collect.**
  a. Professionals/corporate: 17700 (15000 + 18% GST)
  b. College faculty: 11800 (10000 + 18% GST)
  c. Students: 9440 (8000 + 18% GST)

- **Steps for Payment:**
  - **Step-1:** URL: https://www.onlinesbi.sbi/sbicollect/icollecthome.htm?corpID=829535
  - **Step-2:** Enter IITD in the Search Bar
  - **Step-3:** Select IITD CEP Account
  - **Step-4:** Select AIML for Industry Bootcamp as payment category
  - **Step-5:** Share your Name, SB Collect Reference Number and the programme name "AIML for Industry Bootcamp" to both email addresses cepaccounts@admin.iitd.ac.in & aimlforindustry.iitd@gmail.com

*Supports multiple payment options like: Debit Card/ Credit Card/ Prepaid Card/ Net Banking/ NEFT/ RTGS/UPI from multiple banks.

Note: Accommodation is available nearby campus on a chargeable basis.

APPLICATION REQUIREMENTS:

LINK: https://forms.gle/LMkvW7crijW8yKsC7

ID Proof: Any government issued photo ID like Aadhar/ PAN Card/ Driving License/Passport etc.

ABOUT IIT DELHI:

The Indian Institute of Technology Delhi (IIT Delhi) is one of the 5 initial IITs established for training, research and development in science, engineering, and technology in India. Established as College of Engineering in 1961, the Institute was later declared as an Institution of National Importance under the "Institutes of Technology (Amendment) Act, 1963" and was renamed as "Indian Institute of Technology Delhi". It was then accorded the status of a Deemed University with powers to decide its own academic policy, to conduct its own examinations, and to award its own degrees. Since its inception, over 48000 have graduated from IIT Delhi in various disciplines including Engineering, Physical Sciences, Management and Humanities & Social Sciences. Of these, nearly 5070 received PhD degrees. The rest obtained a Master's Degree in Engineering, Sciences and Business Administration. These alumni today work as scientists, technologists, business managers and entrepreneurs. There are several alumni who have moved away from their original disciplines and have taken to administrative services, active politics or are with NGOs. In doing so, they have contributed significantly to the building of this nation, and to industrialisation around the world. For more details, please visit: www.iitd.ac.in

ABOUT CONTINUING EDUCATION PROGRAMME:

Executive education is a vital need for the companies to build a culture that promotes newer technologies and solutions and builds a workforce that stays abreast of the rapidly transforming needs to the technological, business and regulatory landscape. Committed to the cause of making quality education accessible to all, IIT Delhi has launched Online Certificate Programmes under eVIDYA@IITD (ई-विद्या@IITD): enabling Virtual & Interactive-learning for Driving Youth Advancement@IITD for Indian as well as international participants. These outreach programmes offered by the Indian Institute of Technology Delhi (IIT Delhi) are designed to cater to the training and development needs of various organisations, industries, society and individual participants at national and international level with a vision to empower thousands of young learners by imparting high-quality Online Certificate Programmes in cutting-edge areas for their career advancement in different domains of engineering, technology, science, humanities and management. For more details, please visit: http://cepqip.iitd.ac.in

For any query please write to CEP, the programme coordinator at aimlforindustry.iitd@gmail.com

For any feedback, please write to:-
CEP, IIT Delhi at
contactcep@admin.iitd.ac.in

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