The Summer of AI

A Summer School on Foundation of Artificial Intelligence, Machine Learning and Data Science

The aim of this summer school is to impart the skills to students in the field of data exploration, machine learning and artificial intelligence. The data is primary requirement for the machine learning and artificial intelligence algorithms. Without the understanding of data, it is quite complicated to choose the appropriate algorithm for ML task. The students can get in depth knowledge about the data, its type and distribution. Further, the machine learning is about designing programs that can learn without being explicitly programmed. It is a branch of computer science, deals with the concepts/patterns/hypotheses from data and being evaluated using heuristic based algorithms. The main approaches are supervised and unsupervised learning. Supervised learning algorithms make use of data with labeled examples whereas unsupervised learning algorithms use data without labeling. Artificial Intelligence is become one of the most revolutionary technologies at that time. Every day, we interact with intelligent systems and services in various forms, including apps on our phones, websites, and other devices. This technology never ceases to mimic the human brain and thus AI has gained a lot of interest for decades. It is the branch of computer science that emphasizes on creating intelligent machines that work and react like humans. The machine exhibits similar behavior like human mind for solving the problems and learning.

Prerequisite

- Basic understanding of the fundamentals of Programming
- Basic Mathematical Background

Summer School Objective

The objectives are

- To develop skill of students in the field of foundation of data, ML and AI tools and methods.
- To know about the structure of data required for developing the AI & ML applications.
- To learn the role of performance metrics and identification of key metrics.
- To differentiate supervised, semi-supervised and unsupervised learning concepts.
- To develop the ability for solving real world problems using AI & ML.

Summer School Outcome

At the end of school, students will be able to:

- Gain in-depth knowledge of ML methods like data exploration, data visualization, hypothesis building, and testing
- Understand the concepts of supervised and unsupervised learning models and its functionality.
- Design and build intelligent agents/algorithms using AI concepts and ML models.
- Understand the meaning, purpose, scope AI and ML applications.

Summer School Content

Module 1- Data Exploration, Optimization and Visualization

- Data Quality
- Data Distribution
- Transform Features
- Get more data
- Descriptive Statistics
- Hypothesis Testing
- Inferential Statistics
- Machine Learning Workflow
- Performance Metrics
- Need for Performance Metrics
- Confusion Matrix -Accuracy, Precision, Recall and F-Measure
- Practical Implementation
  - ANOVA
  - Missing Value Interpretation
  - Normalization

Module 2 – Foundations of Machine Learning

- Machine Learning Fundamentals
- Frequent Term in ML and its Scope
- Relationship between Machine Learning and Statistical Analysis
- Process of Machine Learning

- Types of Machine Learning
- Supervised/Semi-supervised Learning
- Unsupervised Learning
- Dimension Reduction
- Practical Implementation of ML Algorithms
  - Regression-Prediction
  - Naive Bayes- Classification
  - Decision Tree- Classification
  - Support Vector Machine – Classification
  - KNN- Classification/Dimension Reduction
  - K-Mean- Clustering/Dimension Reduction
  - K-Mediods- Clustering
  - PCA- Dimension Reduction

Module 3- Decoding Artificial Intelligence

- AI: Application areas
- AI Basics (Divide and Conquer, Greedy, Branch and Bound, Gradient Descent)
- NN basics (Perceptron and MLP, FFN, Backpropagation)
- Convolution Neural Networks
- Image classification
- Text classification
- Image classification and hyper-parameter tuning
- LLM: ChatGPT, Alpaca, etc.
- Emerging NN Architectures: GNNs

Module 4- Implementation of Project Related to Diverse Field

- Project 1: Fare Prediction for Taxi (Domain: E-Commerce)
- Project 2: Developer Recommendation System (Domain: Software)
- Project 3: Products Rating Prediction for Online Shopping (Domain: E-commerce)
- Project 4: Demand Forecasting (Domain: Sales)
- Project 5: Improving Customer Experience (Domain: Telecom)

- Project 6: Attrition Analysis for Company Employees (Domain: Workforce Analytics/Human Resource Management)
- Project 7: Movie Lens Dataset Analysis (Domain: Engineering)
- Project 8: Stock Market Data Analysis (Domain: Stock Market)
- Project 9: Image Classification Neural Network (Domain: Telemedicine)
- Project 10: Rain Fall Prediction (Domain: Society/Weather)
- Project 11: Prediction Health information for Insurance Business (Domain: Hypothesis&Society)
- Project 12: Lung Cancer Module Detection (Domain: Society& Medical Imaging)
- Project 13: Prompt Engineering at ChatGPT.

Audience

The intended audience for this Summer School

- The students enrolled in B.Tech. (CSE, IT, ECE, BT, BI, CIVIL), Masters and PhD and other related areas.
- The program is also open to the undergraduate students who are enthusiastic about the AI and ML field.
- The academics and industry practitioners inclined towards research.

Dates: 11th to 30th June 2023 (**Offline Mode**)

Total Seats: 30 **(Limited Seats. Allocation will be done on First Come First Serve Basis)**

Fees and Charges

Registration Fee	Internal Candidate	INR 500/-
	External Candidate	INR 2500/-
Mess Charges	Internal Candidate	JUIT Norms
	External Candidate	JUIT Norms
Accommodation	Internal Candidate	Included in Fee
	External Candidate	Included in Fee

The Summer of AI				
Content	**Day**	**Faculty (L)**	**Faculty (Lab)**	**Hours**
Module 1:Data Exploration, Optimization and Visualization				
• Data Quality • Data Distribution • Transform Features • Get more data	12th-13th June	Dr. Yugal Kumar	Dr. Aman (Basic of Python)	Venue-CR3 (Lecture) Lecture: 9:15-12:15 Venue-CL8(Lab) Lab: 2:30-4:30
• Descriptive Statistics • Hypothesis Testing • Inferential Statistics	14th-15th June	Dr. Pardeep Kumar	Dr. Yugal Kumar (Hand on Statext Tool)	
• Machine Learning Workflow • Performance Metrics • Need for Performance Metrics • Confusion Matrix -Accuracy, Precision, Recall and F-Measure	16th June	Dr. Yugal Kumar	Dr. Kushal Kanwar (Hand on ANOVA)	
• Practical Implementation – ANOVA – Missing Value Interpretation – Normalization	17th June	Dr. Yugal and Dr. Kushal Kanwar (ANOVA Basics and Handling Missing Value)		
Module 2:Fundamentals of Machine Learning and Deep Learning				
• Machine Learning Fundamentals • Frequent Term in ML and its Scope • Relationship between Machine Learning and Statistical Analysis • Process of Machine Learning • Types of Machine Learning	19th June	Dr. Pardeep Kumar	Dr. Yugal Kumar (Hand on Weka and Meka Tool)	Venue-CR3 (Lecture) Lecture: 9:15-12:15 Venue-CL8(Lab) Lab: 2:30-4:30
• Supervised/Semi-supervised Learning • Unsupervised Learning • Dimension Reduction • Practical Implementation of ML Algorithms • Regression	20th June	Dr. Yugal Kumar	Dr. Kushal Kanwar (Regression Problem)	
• Naive Bayes • Decision Tree	21st June	Dr. Pardeep Kumar	Dr. Yugal Kumar and Dr. Kushal Kanwar	
• Support Vector Machine • KNN • K-Means • K-Mediods	22nd -23rd June	Dr. Yugal Kumar	Dr. Kushal Kanwar and Dr. Yugal Kumar	
• PCA	24th June	Dr. Kushal Kanwar	Dr. Kushal Kanwar	
Module 3:Decoding Artificial Intelligence				
• AI: Application areas • AI Basics (Divide and Conquer, Greedy, Branch and Bound, Gradient Descent)	26th June	Dr. Kushal Kanwar	Dr. Yugal Kumar	Venue-CR3 (Lecture) Lecture: 9:15-12:15 Venue-CL8(Lab) Lab: 2:30-4:30
• NN basics (Perceptron and MLP, FFN, Backpropagation) • Convolution Neural Networks	27th June	Dr. Yugal Kumar	Dr. Kushal Kanwar	
• Image classification • Text classification • Image classification and hyper-parameter tuning	28th June	Dr. Pardeep Kumar	Dr. Kushal Kanwar and Dr. Yugal Kumar	
• LLM: ChatGPT, Alpaca, etc. • Emerging NN Architectures: GNNs	29th-30th June	Dr. Kushal Kanwar	Dr. Kushal Kanwar and Dr. Yugal Kumar	

IEEE

Vivek Sehgal <vivekseh@ieee.org>

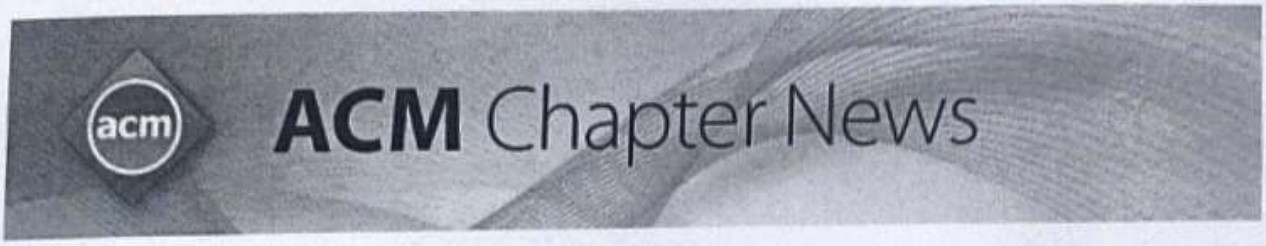
ACM Chapter Events - JUIT ACM Student Chapter - The Summer of AI | Summer School - 11 June 2023

1 message

ACM Local Activities <local_activities@hq.acm.org>
To: vivekseh@ieee.org

Tue, May 9, 2023 at 10:05 PM

ACM Chapter Events May 9, 2023



The following message is being sent on behalf of the JUIT ACM Student Chapter:

Greetings to all!

This is an invitation to join our upcoming Summer School on Data Science, Machine Learning, and Artificial Intelligence - The Summer of AI, organized by the ACM Student Chapter, Jaypee University of Information Technology (JUIT).

The summer school will be an unique opportunity for college students to deepen their knowledge in the fields of data science, machine learning, and artificial intelligence. The summer school aims to cover a wide range of topics, including:

Data exploration, optimisation, and visualisation
Foundations of Machine Learning
Decoding Artificial Intelligence
Implementation of Projects Related to Diverse Fields

The intended audience for this summer school includes students enrolled in B.Tech. (CSE, IT, ECE, BT, BI, and Civil), Masters, PhD, and other related areas. The programme is also open to undergraduate students who are enthusiastic about the AI and ML fields, as well as academics and industry practitioners inclined towards research.

Upon completion of the summer school, the students will be able to gain in-depth knowledge of ML methods, supervised and unsupervised learning models, design and build intelligent agents and algorithms using AI concepts and ML models, and understand the meaning, purpose, and scope of AI and ML applications.

Mode: Offline Mode at Jaypee University of Information Technology. (H.P.)
Summer School Dates: Sunday 11th June, 2023 - Friday 30th June, 2023.
Last date for application: Sunday 28th May, 2023

Fees Structure:
Registration Fees: INR 500 for JUIT students and INR 2500 for others.
Mess Charges: As per JUIT norms (optional)
(If availed, payment to be done later when you reach campus)
Breakfast: INR 75 | Lunch: INR 100 | Dinner: INR 100 per day

Accommodation Charges: Included in registration fee
We hope that you find this interesting and will consider it for the upcoming academic session.

Note: 30 Limited seats only. Allocation will be done on a first come, first served basis.

Summer Training Certificate will be provided on completion of the project.
Fill out the google form to register.

Register Now: forms.gle/uLPUkhWFpBekYAVm7

To know more: docs.google.com/document/d/e/2PACX-1vS0J3lrIsBRmstgrwpc4bfTjnyS1e6wuYGM3tikFDyD-OGn_oVC_i9KExV_SqKVVGZW8ln073JlKOTL/pub

Best Regards,

Dr. Yugal Kumar (Coordinator)
Dr. Kushal Kanwar (Co-Coordinator)
Dr. Pardeep Kumar Khokhar (Convener)

For any query, you can contact Devansh Chaudhary (Student Coordinator) at +91-9997041234 or mail us at acm@juitsolan.in

Association for
Computing Machinery

Connect with us:

1601 Broadway, 10th Floor, New York, NY 10019

List of the Students for Summer School on AI

Enrollment No.	Full Name	Gender	Contact Number	Emergency Contact Number
201108	Aditya partap singh	Male	8295676860	9996630015
201136	Sayam	Male	7876629572	7876629572
201434	Bhanu Pratap Singh	Male	9805528387	9805528387
201249	Arpan Gupta	Male	7807257025	9418181025
201128	Abhinav Jain	Male	9630019902	9407985716
201111	Surbhi sood	Female	8219130434	9816005015
201392	Adarsh Thakur	Male	7018529435	9418434656
201177	Kartik parihar	Male	7876717733	7876717733
201117	Amisha Chauhan	Female	9015026554	9418139098
225042	Amit Roy	Male	8981301503	8981301503
201139	Sanya Mahajan	Female	7018391232	8219895199
201385	Puneet Katoch	Male	8091156842	8091156842
201408	Nikhil Sharma	Male	7876802501	7876802501
201148	Deepankar Singla	Male	6239510917	6239510917
201021	Ansh Gupta	Male	7078538774	9997400339
201293	Devanshi Vashistha	Female	9818530940	9643307664
201479	Aryan Bhardwaj	Male	8219259024	9816121431
201503	Dhruv Parashar	Male	8168297215	8580857864
	Monika	Female	9459864111	9459864111
201349	Animesh Singh	Male	7488093564	7488093564
196210	Kumari Monika	Female	9736101653	7018700835