

Report on ACM India and RBCDSAI IIT Madras Summer School at PSG College of Technology

I am writing to provide you with a comprehensive report on my experience attending the ACM India and RBCDSAI IIT Madras Summer School at PSG College of Technology, Coimbatore. The summer school was a 10-day program that took place during the first semester of my second year in engineering.

Introduction:

The summer school provided an excellent introduction to the fields of Artificial Intelligence (AI), Machine Learning (ML), and Data Science (DS). The curriculum encompassed a wide range of topics and practical sessions aimed at building a solid foundation in these domains.

Syllabus:

The syllabus covered a diverse set of subjects, including the following:

Introduction to AI/ML/DS, Probability, and Machine Learning: This segment introduced the fundamental concepts and applications of AI, ML, and DS, providing a holistic perspective on the field.

Descriptive Statistics and Inferential Statistics: I gained a strong understanding of summarizing and analyzing data, as well as making inferences and drawing conclusions from data.

Mathematical Foundations for AI/ML/DS: The course delved into essential mathematical concepts such as linear algebra and calculus, which are crucial for understanding advanced AI, ML, and DS techniques.

Regression Techniques: I learned about multivariate regression, ridge regression, LASSO, model evaluation and selection, and cross-validation approaches, which are fundamental in predicting continuous values.

Classification Algorithms: The course explored various classification algorithms, including naive Bayes classifier, logistic regression, and K-nearest neighbors (K-NN), empowering me with the ability to predict categorical outcomes.

LDA, QDA, SVM: I gained hands-on experience with Linear Discriminant Analysis (LDA), Quadratic Discriminant Analysis (QDA), and Support Vector Machines (SVM), which are powerful tools for classification tasks.

Tree-Based Methods, Boosting, Bagging: The course covered decision trees, ensemble methods like boosting and bagging, and their applications in solving real-world problems.

Clustering Techniques: I learned about K-NN, K-means clustering, and hierarchical clustering, which allowed me to identify patterns and group similar data points together.

Neural Networks: I received an introduction to neural networks, including perceptrons, multilayer perceptrons, feedforward neural networks, and backpropagation algorithms, which are crucial components of deep learning.

CNN and DL Models: The program provided insights into Convolutional Neural Networks (CNN) and deep learning models, enabling me to work with complex data such as images and text.

Case Studies: The course concluded with case studies focusing on the implementation of AI, ML, and DS in Indian industries, offering real-world applications and challenges.

Environment and Facilities:

I had the privilege of staying at the PSG Hostel throughout the duration of the summer school. The environment was comfortable, conducive to learning, and provided a sense of community. The facilities were well-maintained, and the staff members were friendly and supportive.

Food and Accommodation:

I am grateful to mention that both food and accommodation were provided free of charge during my stay at the PSG Hostel. The meals served were nutritious and delicious, catering to diverse dietary preferences. The hostel rooms were clean, spacious, and equipped with necessary amenities, ensuring a pleasant and comfortable stay for all participants.

Overall, the ACM India and RBCDSAI IIT Madras Summer School at PSG College of Technology was an incredibly enriching experience. The comprehensive syllabus, hands-on sessions, and supportive learning environment allowed me to deepen my understanding of AI, ML, and DS. The program equipped me with practical skills and knowledge that I have been able to apply in subsequent years of my engineering education.

I am sincerely grateful for the opportunity to attend this summer school, as it has contributed significantly to my academic and professional growth. I extend my heartfelt appreciation to ACM India, RBCDSAI IIT Madras, PSG College of Technology, and all the instructors and staff members involved in organizing and conducting this remarkable event.

Should you require any further information or have specific inquiries regarding my experience at the summer school, please do not hesitate to contact me. Thank you for your time and consideration.

Yours sincerely,

G L Pravallika



CERTIFICATE OF PARTICIPATION

This is to certify that

Ms. Gangadevi Lakshmi Pravallika

attended the **ACM India - RBCDSAI Summer School 2022**

on DS/ML/AI for Women Hosted

by PSG College of Technology and Sponsored by MSRI

from **11th July 2022 to 22nd July 2022**

B. Ravindran.

Prof. B. Ravindran
Head- RBCDSAI, IITM

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