



Kotak IISc AI-ML Centre

A report of activities:
July–September 2023



Executive Summary

The Kotak IISc AI-ML Centre ([KIAC](#)) was involved in myriad activities in the three months from July to September 2023. The focus was on developing computing infrastructure for undergraduate (UG) education, teaching, skill development, capacity building, student and research support, and outreach, to name a few. The initiatives were led by the Centre's Convenor, Professor Chiranjib Bhattacharyya, and Co-convenor, Professor Venkatesh Babu Radhakrishnan. The [Governing Board](#), [Scientific Advisory Board](#), and [Project Review Committee](#) members met to discuss the progress and future agenda for the Centre.

The KIAC UG Computation Lab was inaugurated by Milind Nagnur, Chief Technology Officer, Kotak Mahindra Bank Limited ([KMBL](#)) on 23 August 2023. The Lab facilitated the first-of-its kind short course on Large Language Models for the second year UG students of the [BTech \(Mathematics and Computing\)](#) programme at the Indian Institute of Science ([IISc](#)), in collaboration with the Microsoft Corporation.

Students Sasmita Harini S and Shivey Ravi Guttal were supported through the Kotak Scholarship, while student Aditya Subramanian received the PhD top-up scholarship. The Centre facilitated the travel of three students and one faculty member to attend the prestigious International Conference on Computer Vision ([ICCV23](#)), and one KIAC faculty to attend the 22nd International Conference on Cryptology and Network Security ([CANS 2023](#)).

Several schools/conferences/workshops, with a total of 777 beneficiaries, were sponsored by KIAC during this quarter. Of these, the 36th Annual Conference on Learning Theory ([COLT 2023](#)) was held for the first time in India. The attendees in these events included delegates from leading industries and academic institutions such as the Indian Space Research Organisation ([ISRO](#)) and the Aeronautical Development Agency ([ADA](#)).

Calls have been released for the PhD top-up scholarships, internships, pre-doctoral fellowships, post-doctoral fellowships, support to attend leading AI conferences, and support to host workshops. Thirunavukkarasu R has been appointed as Systems Administrator for the UG Lab. The appointment of a Program Manager for KIAC will be completed by December 2023.

The activities of the Centre during July to September 2023 are described in the following pages.

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Objective of KIAC

The Kotak IISc AI-ML Centre (KIAC) at the Indian Institute of Science (IISc) was conceived of with the objective of creating a state-of-the-art AI-ML and Fintech Centre at IISc to (a) develop rigorously-trained human resources who will become future leaders of this technology and champion India's surge in this area, (b) conduct cutting-edge research in this area leading to international visibility of the highest order, and (c) develop innovative, deep-tech solutions to meet the current and emerging requirements of the industry.

Governance

The governance of the Centre is overseen by the following structure: The Convenor and Co-convenor are responsible for creating technical programmes that are in-line with the memorandum of understanding (MoU). These programmes are presented to the Scientific Advisory Board (SAB) to ensure that the conceived programmes are compatible with the MoU. The SAB reports to the Governing Board (GB). The Project Review Committee (PRC) also reports to the GB and reviews the overall functioning of the Centre.

Members of the Governing Board

[Govindan Rangarajan](#), IISc (Chair)
[Navakanta Bhat](#), IISc
[Yadati Narahari](#), IISc
Kaushal Verma, IISc
[Milind Nagnur](#), KMBL
[Himanshu Nivsarkar](#), KMBL

Members of the Scientific Advisory Board

[Rajesh Sundaresan](#), IISc (Chair)
[Chiranjib Bhattacharyya](#), IISc
[Venkatesh Babu Radhakrishnan](#), IISc
[Srikanth Krishnan Iyer](#), IISc
[Bhaskar Kumar](#), KMBL

Members of the Project Review Committee

[S K Satheesh](#), IISc (Chair)
[P S Anil Kumar](#), IISc
[Rajesh Sundaresan](#), IISc
[Himanshu Nivsarkar](#), KMBL
[Amit Dhalwade](#), KMBL

Members of the KIAC Team

Convenor: [Chiranjib Bhattacharyya](#)
Co-convenor: [Venkatesh Babu Radhakrishnan](#)
Chair Visiting Professor: [C Pandu Rangan](#)
Visiting Professor: [Viraj Kumar](#)
Systems Administrator: [Neetha Ashtakar](#)
Secretary: [Sudha Aithal](#)
Senior Editorial Assistant: [Geethanjali Monto](#)

Key achievements at KIAC during July-September 2023

The Kotak IISc AI-ML Centre undertook multiple activities during July-September 2023 in keeping with its objectives. These activities have evolved based on priorities and actions that needed to be undertaken before some planned activities could be executed. In addition to executing unplanned activities, most of the planned activities have been completed.

Activities at a glance

The activities undertaken during July–September 2023 are presented in the table below, along with the beneficiaries and output indicators for each.

JULY–SEPTEMBER 2023 ACTIVITIES			
Date	Activity	Number of participants/ beneficiaries	Output indicators
July 2023	Continuation of research support to Aditya Subramanian for July 2023	1	education, student support
July–Sep 2023	Continuation of Kotak scholarship to Sasmita Harini S	1	education, student support
July–Sep 2023	Setting up the KIAC UG Instructional Lab	50	developing computing infrastructure for undergraduate education
July–Sep 2023	Support to attend leading AI conferences	4	skill development, visibility, enabling publications in prestigious journals and participation in top-level conferences
July–Sep 2023	Recruitment of Program Manager (ongoing)	1	staff recruitment
3–7 July 2023	Electrical Engineering Summer School 2023	117	skill development, education, capacity building
4 July 2023	Kotak IISc AI-ML talk 4 by Michael I Jordon	120	education
12 July 2023	Workshop on Role of AI/ML, Robotics and extended Reality (XR) for Space Exploration	200	skill development, education, capacity building
12-15, 16 July 2023	36th Annual Conference on Learning Theory (COLT 2023)	300, 50	skill development, education, capacity building

JULY–SEPTEMBER 2023 ACTIVITIES (contd)

Date	Activity	Number of participants/ beneficiaries	Output indicators
24–28 July 2023	New Approaches and Machine learning Methods for Ab initio calculations (NAMMA 2023): Psi-K India Workshop	160	skill development, education, capacity building
28 July 2023	Talk by Thomas K Philips (event)	20	education
1 Aug 2023	Start of Kotak scholarship for Shivey Ravi Guttal	1	education, student support
1 Aug 2023	Appointment of Thirunavukkarasu R as system administrator for the KIAC UG Computation Lab	1	staff recruitment
23 Aug 2023	Inauguration of the KIAC UG Computation Lab	25	developing computing infrastructure for undergraduate education
23 Aug 2023	Award of the Kotak scholarship certificate to Shivey Ravi Guttal by Milind Nagnur (Chief Technology Officer), KMBL	1	education, student support
28 Aug 2023	Kotak IISc AI-ML talk 5 by Nirlay Kundu	15	education
12 Sep 2023	Kotak IISc AI-ML talk 6 by Tanushree Mitra	10	education
23 Sep 2023	Computer Science Workshop	49	skill development
30 Sep 2023, 8 Oct 2023	A very short course on Large Language Models	31	skill development, education, teaching
Sep 2023	Release of calls for interns, PhD top-up scholarships, pre-doctoral fellows, and post-doctoral fellows, support to attend AI conferences, and support to host workshops	(to be processed in Oct 2023)	Research support, education, skill development, capacity building, visibility, enabling publications in prestigious journals and participation in top-level conferences.
Sep–Oct 2023	NPTEL workshop on 'Leveraging Generative AI for Teaching Programming Courses'	141	skill development, education, teaching
Oct 2023	Support to KIAC faculty to present their work at international conferences/workshops	1	skill development, education, visibility

Unplanned activities are highlighted in purple font colour.

Ongoing/to be held activities are highlighted in green font colour.

Report on activities

The activities undertaken during July–September 2023 are described in the following pages.

Support for undergraduate education

One of the unplanned activities of the Centre was to support undergraduate education, through setting up of an Instructional Lab and extending support to conduct courses.

Setting up the KIAC UG Computation Lab

July-September 2023

No. of beneficiaries: 50

Location: Indian Institute of Science, Bengaluru

The KIAC UG Computation Lab was inaugurated on 23 August 2023 by [Milind Nagnur](#), Chief Technology Officer, KMBL and [Govindan Rangarajan](#), Director, IISc. Senior delegates from KMBL and IISc were present.



This fully networked instructional Lab has been set up at IISc, with funding from the Kotak IISc AI-ML Centre. The Lab will cater to the computational needs of the undergraduate students of the [BTech \(Mathematics and Computing\)](#) programme at IISc, including the work they will do as part of the artificial intelligence–machine learning course and other projects.



The undergraduate students are directly benefited through courses offered by KIAC distinguished faculty Professor C Pandu Rangan and Professor Viraj Kumar. Currently, the students use the Lab in connection with two courses that they undertake, namely, ‘Data Structures and Algorithms’ and ‘Introduction to Numerical Methods’. Recently, ‘A very short course on Large Language Models’ was conducted exclusively from the Lab. The instructors for the course were Monojit Choudhury (Principal Applied Scientist), Aditi Khandelwal, Kumar Tanmay, and Utkarsh Agarwal (research scholars) from the Microsoft Corporation.

Student support

Financial support is provided to students through the Kotak Scholarship and the KIAC PhD top-up scholarship.

Kotak Scholarship

The Kotak Scholarship is awarded to the woman student with the highest JEE Advanced Rank joining the undergraduate [BTech \(Mathematics and Computing\)](#) programme at IISc.



Sasmita Harini S was the first student to be awarded this Scholarship, for the academic year 2022–23. Scholarship support for Sasmita is being continued.



Shivey Ravi Guttal was the second student to be awarded this Scholarship, for the academic year 2023-24. She received the certificate on 23 August 2023 from Milind Nagnur, Chief Technology Officer, KMBL. Scholarship support for Shivey has started from August 2023.



KIAC PhD top-up scholarship

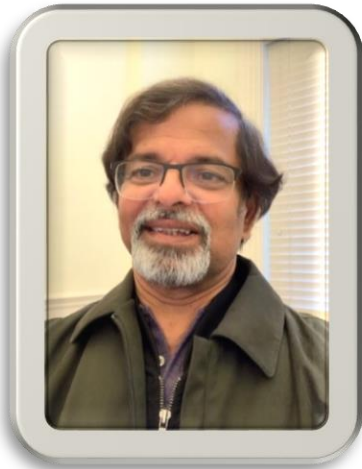
The KIAC PhD top-up scholarship includes a 100% top-up fellowship from KIAC. In the first round, Aditya Subramanian (PhD Engineering, Department of Computer Science and Automation ([CSA](#)), IISc) was selected.

Support was extended to Aditya until July 2023, as per the terms and conditions of support.



Travel support to KIAC faculty

KIAC will be supporting one KIAC faculty's travel to attend a conference, as detailed below.



Name of beneficiary: C Pandu Rangan (Chair Visiting Professor, KIAC)

Name of conference: 22nd International Conference on Cryptology and Network Security

Venue: Augusta, Georgia

Date: 31 October–2 November 2023

Support to attend leading AI conferences

KIAC had sent out emails to IISc faculty members from the Division of Electrical, Electronics, and Computer Sciences ([EECS](#)), the Department of Computational and Data Sciences ([CDS](#)), and the Robert Bosch Centre for Cyber-Physical Systems ([CPS](#)) encouraging them to apply for financial support from KIAC to attend premier conferences related to artificial intelligence.

The objective was to encourage and support researchers (faculty members and students) to attend premier conferences related to artificial intelligence.

The support (registration, travel, hotel stay, per diem) will be a maximum of Rs 1.5 lakhs per paper for presenting regular papers in the main conference in any one of the indicated conferences. The paper will be displayed on the [KIAC website](#) along with the photo of the beneficiary.

Four candidates were chosen from the first round of calls to attend the International Conference on Computer Vision ([ICCV23](#)). They are:

1. Shankhanil Mitra (student), presenting the paper ‘Test Time Adaptation for Blind Image Quality Assessment’
2. Harsh Rangwani (student), presenting the paper ‘Strata-NeRF: Neural Radiance fields for Stratified Scenes’
3. Abhipsa Basu (student), presenting the paper ‘Inspecting the Geographical Representativeness of Images from Text-to-Image Models’
4. Venkatesh Babu Radhakrishnan (professor), presenting the paper ‘Domain-Specificity Inducing Transformers for Source-Free Domain Adaptation’

Support for schools/ conferences/workshops

As per the commitment in the April-June 2023 quarter, KIAC supported four schools/conferences/workshops, as detailed below.

Electrical Engineering Summer School 2023

Date: 3–7 July 2023

Number of participants: 117

Venue: Indian Institute of Science, Bengaluru



The Electrical Engineering Summer School 2023 was held during 3-7 July 2023 in the Department of Electrical Engineering in IISc. A total of 117 undergraduate and postgraduate students from many top colleges and institutes across India attended the event. The event consisted of talks by faculty, industry experts, students; lab visits and demonstrations, poster session, open discussions with faculty and student panels; tutorials; and quizzes. These sessions covered a variety of topics such as technical introductions to different areas, career opportunities and challenges, research highlights, and student life in IISc.

The subject areas covered included power systems, high voltage engineering, power electronics, signal processing, computer vision, AI/ML and controls. There were two days of dedicated AI/ML sessions sponsored by KIAC on Day 3 and Day 4 (For Day 3 and Day 4 talks: EE Summer School 2023 | EE dept, IISc)

The AI/ML talks were:

1. Linear algebra in signal processing and machine learning
2. Solving translation averaging – lessons for engineers
3. Robust estimation for geometric problems
4. Demystifying Generative AI and Diffusion Models
5. Real world application of computer vision
6. Explainable AI: understanding highly accurate deep models
7. Investigating our sleeping brains
8. Data efficient learning in computer vision
9. Real time planning for multi-agent coordination: reinforcement learning aided application to multi-robot

The tutorials were:

1. 3D volumetric rendering: neural radiance fields
2. Image reconstruction by numerical optimization
3. Self-supervision and large language models – the buzz of Generative AI

Workshop on Role of AI/ML, Robotics and extended Reality (XR) for Space Exploration

Date: 12 July 2023

Number of participants: 200

Venue: Indian Institute of Science, Bengaluru



The aim of this workshop was to (i) congregate AI researchers and space scientists from ISRO, (ii) discuss applications of AI/ML and robotics for future space missions, (iii) explore XR technology for cockpit design of crewed missions, and (iv) plan a similar workshop at a reputed venue like ICRA 2024.

The workshop started with a welcome address from Chiranjib Bhattacharyya, Convenor of KIAC. The Director of ISRO Human Space Flight Program graced the occasion with a detailed presentation on the upcoming Gaganyaan mission. An opening plenary was delivered by S K Ghosh (Professor, IIT Kharagpur) on Spatial Data Science and its relevance for planetary exploration. It was followed by two interesting talks on space robotics and the Chandrayan mission. Students from IISc demonstrated XR-based robot control and simulation of Martian habitat, during the lunch break.

The afternoon session started with a panel discussion on the role of AI and Robotics in space exploration. Participants from the Aeronautical Development Agency (ADA), Council of Scientific & Industrial Research-National Aerospace Laboratories (CSIR-NAL), and Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) presented developments in XR-based cockpit development and digital twins. Delegates from the University of Akron, USA and Brunel University, UK presented work on using XR technology for space exploration and training crew for an international space station.

Overall, the workshop was a grand success with more than 200 registrations and physical attendance by colleagues from the British Deputy High Commission, Ingersoll Rand, Shell, British Telecom, Tata Consultancy Services and many other industries and academic institutes.

36th Annual Conference on Learning Theory (COLT 2023)

Date: 12-15 July 2023

Number of participants: 300

One-day workshop on Learning Theory

Date: 16 July 2023

Number of participants: 50

Venue: Indian Institute of Science, Bengaluru



The Kotak IISc AI-ML Centre partly supported the 36th Annual Conference on Learning Theory (COLT 2023) held between 12-15 July 2023, held for the first time in India. In addition, the Centre supported the one-day workshop on Learning Theory, which was conducted as part of COLT 2023 on 16 July 2023 at the J N Tata auditorium, Indian Institute of Science, Bengaluru. The workshop featured many world-renowned experts in the field of online learning and optimization, giving talks about their pioneering work in the area. The event was well-attended with approximately 50 participants in all.

The distinguished guest at the workshop was Nicolò Cesa-Bianchi, Professor of Computer Science, Università degli Studi di Milano, Italy, who has written influential articles and books on online learning algorithms. The workshop celebrated his 60th birthday in the presence of his students – current and past – and his collaborators.

The workshop was also graced by other eminent scientists including Manfred Warmuth, Yoav Freund, Sebastien Bubeck, Yishay Mansour and Claudio Gentile, who spoke on a range of topics from forecasting algorithms to multi-armed bandit optimization methods. The presentations and discussions significantly enriched understanding and opened new avenues for future research and collaboration.

The workshop successfully facilitated the creation of a conducive platform for Indian students, early-career scientists and researchers to interact with and learn from seasoned experts in the field. This, it is hoped, not only bolstered their knowledge and expertise but also created potential opportunities for collaborative research projects in the future.

New Approaches and Machine learning Methods for Ab initio calculations (NAMMA 2023): Psi-K India Workshop

Date: 24-28 July 2023

Number of participants: 160

Venue: Indian Institute of Science, Bengaluru; Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru



The NAMMA 2023 workshop, organised jointly by the Indian Institute of Science ([IISc](#)), Bengaluru; Jawaharlal Nehru Centre for Advanced Scientific Research ([JNCASR](#)), Bengaluru, and the Chatterjee Group–Centres of Research and Education in Science and Technology ([TCG-CREST](#)), Kolkata was held in Bengaluru from 24-28 July 2023. This is the first such meeting organised in India, sponsored by the [Psi-K European Network](#), augmented by generous support from various funding agencies such as the Kotak IISc AI-ML Centre at IISc, Sheikh Saqr Lab at JNCASR, Shell India Pvt Ltd, Netweb Technologies, Micropoint Computers, Gaussian Inc, apart from the three organizing institutes (IISc, JNCASR, Shell).

The first two days of this five-day workshop were devoted to pedagogic level workshops with hands-on sessions covering the details of density-functional theory (DFT), density functional perturbation theory (DFPT) and AI/ML techniques used for materials discovery. There were four resource persons and about 60 participants. The following three days were devoted to invited talks covering a wide canvas of DFT and /AI/ML:

-
- AI/ML approaches for accelerating ab initio simulations and materials discovery.
 - New directions in first principles methods and techniques with applications to different material systems ranging from energy materials, two-dimensional materials, quantum materials, perovskites, and materials under extreme conditions.
 - Phenomena covering magnetism, catalysis, defects, and so on.

There were 60 speakers (from different parts of India, taking into account the geographical diversity as well as gender balance), six overseas speakers from Europe, USA and Israel, 30 outstation student participants and 60 student participants from Bengaluru. The lectures in the workshop, as well as the talks at the conference, were streamed live to about 500 researchers, to reach as much of the Indian electronic structure community as possible.

Enabling talks, events, courses, training sessions, workshops

Kotak IISc AI-ML talk series

The Kotak IISc AI-ML talk series facilitates exposure of students to the research work and state-of-the-art in their respective fields of expertise. It includes talks by eminent scientists and researchers (academia and industry) from all over the world, with whom students can interact and collaborate on various projects.

On Dynamics-Informed Blending of Machine Learning and Microeconomics

Speaker: Michael I Jordan, Pehong Chen Distinguished Professor, University of California, Berkeley

Date: 4 July 2023

Number of attendees: 120

Venue: Indian Institute of Science, Bengaluru



Statistical decisions are often given meaning in the context of other decisions, particularly when there are scarce resources to be shared. Managing such sharing

is one of the classical goals of microeconomics, and it is given new relevance in the modern setting of large, human-focused datasets, and in data-analytic contexts such as classifiers and recommendation systems. Michael I Jordan discussed several recent projects that aimed to explore the interface between machine learning and microeconomics, including leader/follower dynamics in strategic classification, a Lyapunov theory for matching markets with transfers, and the use of contract theory as a way to design mechanisms that perform statistical inference.

Global Trends in 5G Communication

Speaker: Nirlay Kundu, Distinguished Engineer, Verizon Innovation Labs

Date: 28 August 2023

Number of participants: 15

Venue: online



The talk addressed the 5G technology landscape, its deployment in a Tier 1 telco environment, the challenges of network planning, the role of standards in advancing adoption of open interfaces and addressing the business challenges that network operators face.

Algorithmic Governance: Auditing Search and Recommendation Algorithms for Problematic Content

Speaker: Tanushree Mitra, Assistant Professor, University of Washington, Information school

Date: 12 September 2023

Number of participants: 10

Venue: Indian Institute of Science, Bengaluru



Today, online social systems have become integral to our daily lives. Yet, these systems and the algorithms driving them surface problematic content, whether they be harmful misinformation or damaging conspiracy theories. Left unchecked, these problems can negatively impact our democracy. How do we systematically investigate algorithmic misinformation? How do we govern algorithmic systems to safeguard against problematic content? In her talk, Tanushree Mitra presented the results of algorithmic audits for misinformation conducted on the search and recommendation algorithms driving two platforms: 1) YouTube, the most popular video search platform and 2) Amazon, world's leading e-commerce platform. She presented ideas on how we can develop effective long-term algorithmic governance, the challenges in doing so and the new governance challenges and opportunities that are emerging with the recent advances in the field of large language models.

Events

A variety of events are being organised, utilizing various modes of interaction such as panel discussion, to encourage debates and discussions among peer groups and to highlight the work of experts in various fields related to artificial intelligence.

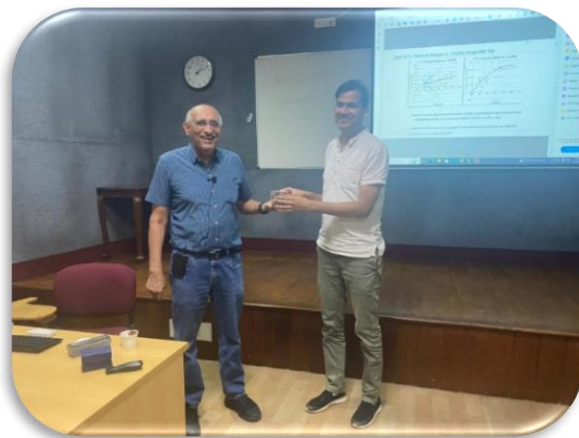
Talk on 'Cyclically Adjusted Price/Earnings Ratio (CAPE) as a Predictor of Long - Term Equity Returns'

Speaker: Thomas K Philips, Adjunct Faculty, Department of Finance and Risk Engineering, Tandon School of Engineering, NYU

Date: 28 July 2023

Number of participants: 20

Venue: Indian Institute of Science, Bengaluru



Robert Shiller's cyclically adjusted price/earnings ratio (CAPE) has proven to be a powerful descriptor, as well as a useful predictor, of long-term equity returns in the United States and many global markets. CAPE uses a 10-year average of real earnings to simultaneously filter noise in earnings and to estimate corporate profitability over a business cycle.

In this talk, Thomas K Philips explained CAPE's theoretical underpinnings and simplified its methodology by separating the filtering of noise from the detection of cyclicity in earnings. In addition, he accounted for an empirical nonlinearity in the relationship between valuation ratios and equity market returns and combined two robust non-linear forecasts to create an improved forecast of the 10-year forward returns of the S&P 500. He also explained why robust estimators are of particular importance in finance, and why so many predictive models perform poorly out-of-sample.

Courses

Lectures by experts from KIAC, IISc, other academic institutions, and industry are organised for the benefit of students from IISc.

[A very short course on Large Language Models](#)

Instructors: Monojit Choudhury (Principal Applied Scientist) and Aditi Khandelwal, Kumar Tanmay, Utkarsh Agarwal (research scholars), Microsoft Corporation

Date: 30 September 2023, 8 October 2023

Number of participants: 31

Venue: Indian Institute of Science, Bengaluru



A very short course on Large Language Models was conceived and taught for the benefit of the second-year undergraduate students of the [BTech \(Mathematics and Computing\)](#). The instructors were Monojit Choudhury (Principal Applied Scientist) and Aditi Khandelwal, Kumar Tanmay, Utkarsh Agarwal (research scholars) from the Microsoft Corporation.

The course aimed to provide students with an accelerated understanding of building practical engineering natural language processing (NLP) NLP systems and Prompt Engineering using the most advanced large language models (LLMs). By demonstrating the concepts of practical use through widely-adopted frameworks like HuggingFace and PyTorch, the course illustrated the end-to-end functioning of language models, with a particular focus on Grammar Correctness Checking Systems.

A hands-on approach was adopted to demonstrate the development of these systems and explore various prompting strategies for different large language models, including BingChat (GPT-4), ChatGPT, and PaLM2. Additionally, the course provided a brief overview of how to leverage these developed models in user-facing applications like ChatBots.

4 classes, each of 3 hours duration, were scheduled between September and October, as indicated in the table below.

Class	Date	Lecture	Lab
1	30 September	Introduction to NLP, Brief History of NLP, and its practical application	Getting Started with Python: An Introduction to Using the Regex Library for String Extraction and Manipulation.
2	30 September	Intro to LLMs: Deep Neural Networks, Encoder-Decoder, Autoregressive Learning, Pretraining and Finetuning Paradigm, Supervised, Unsupervised, Few-shot and Zero shot learning, Basic Prompting	Optimizing Large Language Models: Exploring Varied Prompting Strategies for Enhanced Performance
3	8 October	The NLP Pipeline: Data Collection, Preprocessing Steps, Tokenization, Sampling techniques for skewed data, Evaluation of NLP systems, Model Hyperparameters	Building and Assessing a Compact Transformer Model for Grammar Checking with finetuning: Training and Evaluation on GLUE MRPC dataset.
4	8 October	Advanced Topics: Grounding and Hallucination, Multilingual NLP, Responsible AI, AI and Ethics	Exploring Responsible AI with Automated Prompts: Leveraging the PaLM2 Model API on Diverse Datasets.

Training sessions

Computer Science workshop

Date: 21-24 September 2023

Venue: Human Resource Development Centre ([HRDC](#)) of the Delhi Public School Society (DPSS)

Organiser: HRDC

Instructor: Viraj Kumar, Visiting Professor, KIAC

Date: 23 September 2023

Number of participants: 49



On 23 September 2023, Viraj Kumar (Visiting Professor, KIAC) conducted a two-part session for computer science teachers of classes 9-12. The session was part of a residential Computer Science workshop organised by the Human Resource Development Centre ([HRDC](#)) of the Delhi Public School Society (DPSS) between 21-24 September 2023. The objective of the workshop was to acquaint teachers with teaching strategies and the latest developments in the field.

Viraj's session was in two parts:

- (i) Implications of Generative AI on Programming. This two-hour session provided teachers with a high-level understanding of Generative AI, why it is effective for writing code (especially code for students), and where the current school Computer Science curriculum must be changed due to the emergence of (and easy access to) Generative AI tools. The session included some hands-on components and a vibrant question-answer session.
- (ii) Questions for Assessing the Ability to Critique. This largely hands-on two-hour session introduced teachers to a new style of questions, namely Refute questions, that explicitly develop the ability of students to critically analyse artefacts such as AI-generated code. The teachers were provided resources to effectively create and evaluate such questions and provide students with formative feedback.

Workshops

Leveraging Generative AI for Teaching Programming Courses

Instructor: Viraj Kumar, Visiting Professor, KIAC

Date: September-October 2023

Number of participants: 141

Venue: online

Organiser: National Programme on Technology Enhanced Learning (NPTEL)

**LEVERAGING
GENERATIVE AI FOR
TEACHING
PROGRAMMING
COURSES**

INSTRUCTOR
Prof. Viraj Kumar
Visiting Professor, IISc Bangalore

INTENDED AUDIENCE
Faculty in Computer Science and related
Disciplines in B.Tech/ B. E./M.Tech/M.E./B.Sc/
M.Sc/BCA/MCA programmes

DATE	TIME	FEES:
23 rd Sep, 2023	11:00 am - 01:00 pm 06:00 pm - 07:00 pm	• M.Tech/PhD Students: Rs.944 (Rs.800 + 18% GST)
24 th & 30 th Sep, 2023 1 st Oct, 2023	04:00 pm - 07:00 pm 09:00 am - 10:00 am	• Faculty: Rs.1180 (Rs.1000 +18% GST)

MODE OF WORKSHOP:
Online

LAST DATE OF REGISTRATION:
19th Sep, 2023

FOR REGISTRATION [CLICK HERE](#)

A total of 141 current and prospective Computer Science faculty registered for this online NPTEL workshop. The 10-hour workshop took place on two consecutive weekends, 23/24 September, and 30 September/1 October 2023. Among these participants, 63 (that is, 45%) participated actively enough to earn certificates. At a high level, this workshop was similar to the training session for the DPSS school teachers. However, since this was targeted at college faculty, it was substantially more in-depth. Further, it provided faculty with hands-on exposure to a new style of code-writing problems that cannot be solved by merely copy-pasting solutions produced by Generative AI tools. The workshop provided faculty with both the student perspective (solving these problems) and the faculty perspective (evaluating student solutions).

Release of calls

KIAC has sent out calls to IISc faculty for:

1. KIAC PhD top-up scholarships
2. KIAC internships
3. KIAC pre-doctoral fellowships
4. KIAC post-doctoral fellowships
5. Support to attend leading AI conferences
6. Support to host workshops

The selection for the above calls will be done in October 2023.

Recruitment of staff

Thirunavukkarasu R has been appointed as system administrator for the KIAC UG Computation Lab from 1 August 2023. He is in-charge of systems maintenance and organisational support for the courses conducted.

Efforts to recruit a Program Manager for KIAC is ongoing. It is expected that this will be completed by December 2023.

Compiled by

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with inputs from all concerned with our various activities.

For more details, please visit <https://kiac.iisc.ac.in>

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