Bricks with Clay*

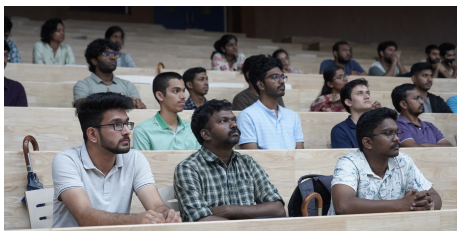
The Quarterly Newsletter of MFSDSAI @ IITPkd

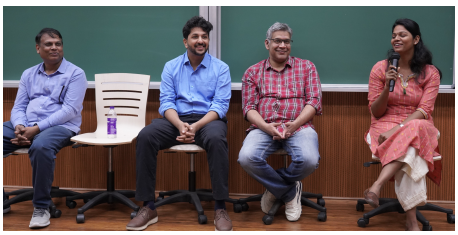
This is the fourth issue of the quarterly newsletter of the Mehta Family School of Data Science & Artificial Intelligence at IIT Palakkad. The newsletter features important events in the school and the achievements of the members in the quarter. This edition also features conversations with a newly joined faculty member and B.Tech and M.Tech placement coordinators.

~ Events ~

1. Annual Research Symposium '26

Jan 2026





This edition of the Data Science Annual Research Symposium featured **industry, academia, and faculty talks, student poster sessions, and panel discussion**, spanning a wide range of topics.

- Keynote Address [online] by **Rahul Mehta**, Founder & Chairman, Mehta Family Foundation
- Keynote talk [online] by **Prof. Ananth Grama** — Purdue University
  Fundamental Limits of Learning Non-Hallucinating Generative Models
- Keynote Talk [online] by **Prof. Shankar Subramaniam** — UC San Diego
  New Frontiers in AI and Biomedicine
- Industry Talk by **Dr. Samarth Bharadwaj** — Microsoft
  LLMs to improve ads quality and relevance in Microsoft ads
- Faculty talk by **Dr. Abhinandan Prasad** — IIT Palakkad
  XFBench: A Cross-Cloud Benchmark Suite for Evaluating FaaS Workflow Platforms
- Academia Talk [online] by **Prof. Srikanta Bedathur** — IIT Delhi
  Temporal Graph Pipelines: From Algorithmics to Predictive Models
- Faculty Talk by **Dr. Raghava Mutharaju** — IIT Palakkad
  Knowledge-Driven AI: Ontologies, Knowledge Graphs, and Explainable Systems
- Industry Talk by **Dr. Anand Eswaran** — IBM Research
  AI for Data Systems, Data Systems for AI: Toward Semantic Infrastructure for the Next Wave of Intelligence
- Academia Talk by **Prof. R. Venkatesh Babu** — IISc Bangalore
  Efficient, Robust, and Equitable: A Decade of Deep Learning
- Panel Discussion on *Learning Principles of Data Science and AI: First or Latest?*
  Panelists: **Prof. R. Venkatesh Babu, Dr. Samarth Bharadwaj, Dr. Anand Eswaran, Dr. Garima Shakya**
  Moderator: **Dr. Swapnil Hingmire**

*an allusion to the famous Sherlock Holmes quote, "Data! data! data!, I can't make bricks without clay" by Arthur Conan Doyle.

2. Pre-event to India AI Impact summit

Feb 2026

Dr. Abhinandan S. Prasad spearheaded the organization of a pre-event for the India AI Impact Summit, which provided participants with valuable insights into the latest advancements in AI and its real-world industrial applications. Attendees gained exposure to emerging concepts such as Generative AI, Cognitive Hyperscaling, and Industry 5.0, enhancing their technical understanding and awareness of future trends. The expert talks and panel discussion enabled meaningful interaction between academia and industry, fostering collaboration and networking opportunities.
Dr. Mrinal Kanti Das conducted the session on GenAI.

3. Talk by Dr. Shrestha Ghosh, University of Tübingen

Feb 2026

The talk on **Trustworthy AI for Information Access and Critical Decision-Making** was well-attended. Dr. Ghosh explained how to materialise LLM factual knowledge as a persistent resource and went on to discuss trustworthy AI in clinical decision-making systems. The talk elicited several questions from the audience.

~ Publications ~

- "GreenEdge AI: Sustainable federated learning for smart city air quality prediction", Sweta Dey, Rishi Raina, Sudeepta Mishra, Abhinandan S. Prasad, Ramesh Dharavath, *accepted to* **Elsevier Journal of Industrial Information Integration**, 2026.
- "SpinVision: An End-to-End Volleyball Spin Estimation with Siamese-based Deep Classification", A K Bedi, P Kumari, R K Soni, N C Krishnan, M Saini, *accepted to* **Computer Vision and Image Understanding**, 2026.
- "Modeling Task Uncertainty for Neural Processes to Meta-Learn with Fewer Tasks", Eva Cherian and Mrinal Das, **Elsevier Neurocomputing**, 2026.
- "On MDS Convertible Codes in the Merge Regime", V. Ramkumar, X. Kong, G. Y. Sai, M. Vajha, and M. Nikhil Krishnan, *accepted to* **IEEE Transactions on Information Theory**, 2026.
- "Characterizing FaaS Workflows on Public Clouds: The Good, the Bad and the Ugly", Varad Kulkarni, Nikhil Reddy, Tuhin Khare, Abhinandan S. Prasad, Chitra Babu, Yogesh Simmhan, *accepted to* **IEEE Transactions on Parallel and Distributed Systems**, 2026.
- "Adaptive Streaming Codes for Three-Node Relay Networks under Burst Erasure Channels", A. Jayakrishnan, V. Ramkumar, M. Nikhil Krishnan, and M. Vajha, *accepted to* **IEEE International Symposium on Information Theory (ISIT)**, 2026.
- "Advances in Electronic Health Records Enabled by Artificial Intelligence and Natural Language Processing: A Review of Recent Developments, Limitations and Future Applications", Etana Fikadu Dinsa, Mrinal Das, and Teklu Urgessa Abebe, **Discover Applied Sciences**, 2026.

~ Congratulations! ~

Yasir Z secured AIR 75 and **Vishnu Shreeram** secured AIR 155
in GATE in Data Science and Artificial Intelligence (DA).

~ Outreach ~

1. **Bharat Bodhan AI Conclave, New Delhi** — Feb 2026

   Dr. Koninika Pal and Dr. Swapnil V Hingmire were invited to attend the Bharat Bodhan AI Conclave organized by the Ministry of Education, Feb 12th-13th.

2. **India AI Impact summit, New Delhi** — Feb 2026

   Dr. Raghava Mutharaju, Dr. Garima Shakya, and Dr. Abhinandan S. Prasad attended the India AI Impact summit organized under the IndiaAI Mission by the Ministry of Electronics and Information Technology.

3. **Invited talk by Dr. Narayanan C Krishnan at University of Calicut** — Mar 2026

   Dr. Narayanan C Krishnan delivered a talk titled "Deep Learning Driving the Modern AI Revolution" at the 5th National Seminar on Computational Intelligence and Data Analytics at the University of Calicut.

~ Achievements ~

⭐ Dr. Sahely Bhadra has been awarded the ANRF Advanced Research Grant (ARG) for the proposal titled *Specific properties guided explainable small molecule generation combining GenAI and Multi-view Kernel model*.

Congratulations, Sahely!

~ Research Corner ~

In conversation with **Dr. Raghava Mutharaju** who joined the school faculty recently. His research interests include Knowledge Graphs, Ontology modeling, Explainable AI, and Neurosymbolic AI.

Q. *Tell us more about your research interests.*

A. My research interests are in the broad area of Knowledge Representation and Reasoning subfield of AI. I work on ontology modelling, knowledge graphs, and using them in various other areas, including Explainable AI, Neurosymbolic AI, Responsible AI, NLP, and IR. I worked in the domains of healthcare and law. My group's research contributions have been published in top conferences and journals in the field of AI. Apart from research, we have been involved in building tools and benchmarks that are primarily meant to simplify ontology building for non-experts. In general, knowledge graphs are used extensively by several commercial enterprises such as Google, Microsoft, LinkedIn, Amazon, GE, and Palantir. Apart from that, GraphRAG has been used with LLMs to ground responses in explicit entities and relationships, improving factual accuracy and multi-hop reasoning.

Q. *A bit about your academic background.*

A. Before moving to IIT Palakkad, I worked at IIIT-Delhi. I completed my PhD from Wright State University in Ohio, USA. Before that, my M.Tech was from NIT, Allahabad. I also spent time in the Industry as a software developer (CA Technologies), research intern (IBM Research, Bell Labs, Xerox Research), and research scientist (GE Research).

Q. *Thanks for being the school's CDC representative! How is that experience?*

A. The experience has been good. I recently started in this role and getting to know the rest of the CDC team. Considering the job market, the placements are going well. The CDC team has been working hard behind the scenes and I hope the placements will keep getting better as we go on.

Q. *How should the students prepare themselves for the job interviews in particular and the job market in general?*

A. The students should be able to use the AI tools to improve their coding and application building productivity. Along with that, they should also be able to code and build applications without using any AI tools, the old fashioned way. This would mean that they should be good at breaking down the applications/models and explain all the details. This will help them with the job interviews and also in correcting the issues/bugs/hallucinations put out by the AI tools. The former (use of AI tools) helps them in their day-to-day tasks at the work place. So, both are required in the current job market.

Q. *What courses are you planning to offer in the coming years?*

A. I will be offering a new course on Explainable AI (XAI) in the next semester (July/Aug 2026). I will be teaching Database Systems in the January 2027 semester. Apart from these, at some point, if possible, I may put out a course on Neurosymbolic AI. Along with that, I plan to have a summer/winter school and a hackathon around the themes of Neurosymbolic/Explainable AI.

Q. *Apart from academics, what do you enjoy?*

A. I enjoy running, trekking, cycling, chess, tennis, anime/manga, and travelling to new places.

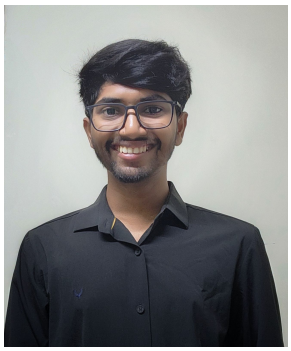
Q. *Do you have any new ideas for the school or our students?*

A. Hackathons are very helpful for the students to come together, discuss, and build in a short time. I would be interested in exploring possibilities to organize hackathons on behalf of the school for the students of IIT Palakkad.

Dr. Raghava would be happy to discuss Knowledge Representation and Reasoning and for that matter, anything interesting; one can find him in his office on the hilltop in Nila campus.

~ Coordinators' Corner ~

In conversation with **Sudhin S**, our M.Tech placement coordinator and **Vishnu Shreeram**, our B.Tech placement coordinator.



Q. *Thanks for coordinating the placements! How is it going?*

SS: The placement packages have improved, compared to previous years and more students have secured roles aligned with their desired industries. Overall, the process is moving in a positive direction, with a wider range of opportunities and better alignment between student interests and company roles.

VS: It went well. Almost 84% of students got placed. The hiring process of a few companies is still ongoing.

Q. *What are the expectations on the part of companies?*

SS: Companies are looking for students who are well-versed in relevant technologies and have hands-on experience through domain-specific projects. It is not just about having the experience, but also about how effectively it is presented. I personally feel that many students lack a strong presence on professional platforms like LinkedIn, as well as participation in public or industry-level competitions.

VS: As per my understanding, broadly there are two sets of requirements that companies ask for. The first set includes Python knowledge, SQL, having worked with ML projects, having some experience in the latest AI buzzwords like MCP, Agentic AI, Tool use, etc.. The second set is more of a traditional setting which includes knowledge on C/C++, OS, Computer Architecture, etc.. However, good DSA is required anyways.

To be honest, for a Data science student to get into the second type of companies involves the student to additonally study topics apart from the standard DS curriculum. However, for the type one companies, Data Science students have a good edge, but that is not sufficient; you also need to have hands-on experience on projects and awareness about the current trends in the AI industry.

Q. *Does the research experience the students gain by carrying out project work within the school help in placements?*

SS: Working on projects within the school provides an in-depth understanding of core concepts, while industrial projects offer exposure to production-level frameworks commonly used in the industry. In my experience, developing expertise in specific concepts significantly helped me

during the placement interview process.

VS: The amount of impact a project have on students is very high especially during the 3rd year. It gives you an edge during the internship/placement process. I can say confidently that the research experience you get while doing projects really help you identify your interests. I will say that it is a 3-in-1 offer where you get credits, project to put on resume, experience where you can evaluate yourself.

Q. *On that note, Vishnu, you were part of a research project which ultimately led to a publication at a top venue like AAAI. Can you tell us your experience with research; how do students take this route?*

VS: I had started doing research projects by the half of second year. That was the stepping stone. During the end of my 3rd year I got a chance to work on a research project with CK sir and his PhD student Hrithik Suresh. It required me to learn a lot to understand the area the lab was focusing on. I utilised my summer on this project and contributed to the codebase and ran experiments which validated the theory. It was really a new and great learning experience. I would suggest students to start early with their projects and explore the works of the school faculty, build skills and reach out for opportunities and most importantly do the work sincerely.

Q. *What are your plans next? How has your time at the MFSDSAI helped you in this regard?*

SS: My goal is to identify gaps in the application of AI that can create meaningful real-world impact. My time on campus, along with interactions with faculty, research scholars, and peers, has given me diverse perspectives on both technology and broader aspects of life.

VS: My plan is go for higher studies. I am really thankful to all the school faculty and the institute for shaping me into who I am. The time here helped me explore the different areas in data science (through both course work and projects). The school is always supportive whenever you need it, you just need to reach out!

Q. *Any tips for the next placement coordinator? And to your juniors?*

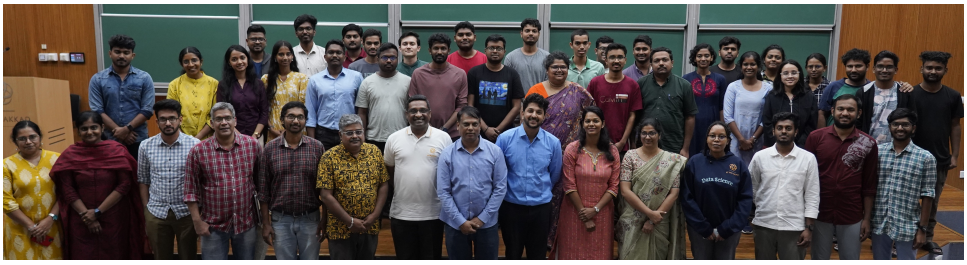
SS: Data Science and AI are not limited to specific job roles—they span multiple interdisciplinary domains. The institute attracts many organizations from diverse sectors for placements, and we should also encourage these companies to consider roles within the Data Science domain, as such expertise is increasingly relevant across industries. Therefore, my advice would be to look beyond the conventional campus placement structure and engage with companies from other domains early in their recruitment process on campus, so that opportunities in data science can be explored more proactively.

VS: To the next placement coordinator, I suggest that we should not just expect the CDC office to bring companies that we wish for. Express the interests of the batch and the companies/roles that you wish for and always be in constant touch with the CDC office.

To my juniors,

- we have the option to take 2 NPTEL courses, you may keep it in reserve for the final year/semester, this will help you go for 6 month internships when you get it.
- Do projects and attend at least one hackathon or competition, sometimes we may not be able get it done in the first try, that's normal, try again (you never know what awaits you there).
- When you try for off-campus placement, network/connections is the key , try to build it.

Sudhin and Vishnu would be happy to answer further queries from the readers; reach out to them on their student email.



~ Editor's dime for the quarter~

Informally, the interface theory of perception says that the relationship between our perceptions and reality is analogous to the relationship between a desktop interface and a computer.

A desktop interface makes it easy to use the computer. To delete or copy files, for instance, one simply needs to drag icons around on the desktop.

But a desktop interface does not make it easy to know the true structure of a computer—its transistors, circuits, voltages, magnetic fields, firmware, and software. Indeed, it's in part by hiding this complex structure that the desktop makes it easier to use the computer. Why? Because if you were forced to be aware of the true facts about circuits, voltages, and magnetic fields, when your goal was simply to edit a photo or write a paper, you would be wasting time, memory, and energy on truths of no relevance to accomplishing your goal.

In [a] similar fashion, says the interface theory of perception, our perceptions have been shaped by natural selection to make it easier for us to act effectively in the world, so that we can survive and reproduce (or, more accurately, so that our genes can survive and reproduce). **Our perceptions have not been shaped to make it easy to know the true structure of the world but instead to hide its complexity**.

Our perception of space-time is analogous to the desktop, and our perception of objects and their properties is analogous to the icons on the desktop. Just as the language of desktops and icons is the wrong language for describing the true structure of the computer, so also the language of space-time and physical objects is the wrong language for describing the true structure of the objective world.

A blue and rectangular icon on a desktop does not represent that something in the computer is blue and rectangular. Not because the icon is false or misleading or illusory, but because the icon is there to help you use the computer, not to distract you with irrelevant details about its innards.

This might seem odd. We're claiming that our normal perceptions are not veridical and yet not illusory. Isn't this self-refuting? After all, the standard definition of illusory perceptions is that they are perceptions that are not veridical.

The standard definition of illusory perceptions is, however, based on an incorrect understanding of perception and its evolution. **It assumes that evolution has shaped our perceptions to be, in the normal case, veridical. But evolution has done no such thing.** Instead, it has shaped our perceptions to be, in the normal case, adequate guides for adaptive behaviors. No perceptions are veridical. But it would be wrong to conclude that therefore all perceptions are illusory. They are not. They usually guide our behaviors quite well. It is only when we misunderstand the evolution of perception that we identify illusory perceptions with nonveridical perceptions.

For instance, when one sees a long, brown rattlesnake, this perception does not mean that something in the objective world is long and brown. Not because the perception is misleading or illusory but because the snake perception is there to adaptively guide your behavior, not to distract you with irrelevant details about the true structure of the world.

There is an obvious rejoinder: *"If you think that snake is just an icon, why don't you pick it up? You'll soon learn that the snake is not just an icon, it's part of objective reality, and reality bites."*

Of course, I won't pick up the snake. For the same reason I wouldn't carelessly drag a blue rectangular icon to the trash. Not because I take the file icon literally— the file isn't blue and rectangular. But I do take the icon seriously. If I drag the icon to the trash, I could lose many hours of work.

And that is the point. Natural selection has shaped our perceptions in ways that help us survive. We had better take our perceptions seriously. If you see a snake, don't grab it. If you see a cliff, avoid it. But taking our perceptions seriously doesn't entail that we must take them literally. To think otherwise, to think that *"I must take my snake perception seriously"* entails *"I must take my snake perception to be literally true of the objective world,"* is an elementary error of logic but one that seems to enjoy a strong grip on the human mind, even the brightest of minds.

— Donald D. Hoffman, Manish Singh, and Chetan Prakash,
The interface theory of perception,
Springer Psychonomic bulletin & review 22, No. 6 (2015).

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