



IIT PALAKKAD

INDIAN INSTITUTE OF TECHNOLOGY
PALAKKAD

Under Ministry of Human Resource Development, Govt. of India

**Report on the Industry Academic Conclave
at
Indian Institute of Technology Palakkad**

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The first Academia-Industry conclave of IIT Palakkad was organized on August 14, 2019. This was an effort to help the students get an exposure to the wants and needs of the industry. At the same time it was aimed at enhancing collaborative research and development activities between various industries and IIT Palakkad. The program was well-received by the students, faculty, and representatives from various industries.

The morning session began with Prof. Vinod A Prasad giving a brief introduction about IIT Palakkad with its history, facts, and present scenario. The industry, to say, were fairly impressed by the progress we displayed in a short amount of time. The second speaker of the morning was a keynote speaker Mr. Mahendra Bapna, Consultant & Adviser to IIT Jodhpur. He gave us a brief history of IITs, its highs during the late 80s and its present (perceived) decline and his views on the industry-academia gulf. He also shared the scheme followed at IIT Jodhpur in instilling the industry preparedness in their students through several industry programmes and modification of courses to align the interest with that of the industries. The final talk was given by Mr. Ramesh Vivek, Director, Product Design and Validation team in Data Centre Group(DCG) at Intel, who took us through the milestones of the company and gave us a glimpse of some of the current areas where Intel is working. After a break, the sessions were continued branch wise.

Session for Civil Engineering:

For the Civil engineering stream, the morning session began with a presentation by faculty members Prof. Tom V Mathew and Dr. V Anil Kumar on the necessity of an IAC and introducing the curriculum, facilities, and faculty of the CE department. The talks from the industry representatives began with Mr. M. A. Joseph, Regional Head, Technical Services at UltraTech Cement Ltd, one of the leading producers of cement globally. He introduced the wide range of products from UltraTech and explained the importance of cement in the overall economy of the country, giving an idea of the usage of cement for various: about 65% of the total cement being produced going to housing and real estate sector and only about 20% to public infrastructure and 15% for industrial development. Amid rising concerns on climate change and deterioration of nature, it was important to realise the need to have more efficient utilisation of cement. Next speaker was Mr. Rajakannu Manikandan, the Chief Manager of ACC Limited. He detailed the manufacture of cement in depth while stressing on the need for optimum and accurate water to cement ratio for better strength and durability. The morning session was concluded with Dr. Rajesh Krishnan, CEO of ITS Planners & Engineers, who presented the work area of his company: providing products and services in the field of Intelligent Transport Systems. He advised students to be well equipped with programming skills and went on to convey what the company expects from a student wishing to enter the profession.

The afternoon continuation for the civil department began with a session by Mr. Bharath Kumar Amarnath of WS Atkins who enlightened us on the cutting edge technologies in bridge construction and the latest software used in the construction industry. The session was concluded

by the presentation of the works of two of our research students. Ms. Vibha, MS scholar, presented her work on tackling rainfall triggered slope failures by geosynthetic reinforced structures and Mr. Jose George, Ph.D. scholar, presented his analysis on climate change variables over the Bharathapuzha basin in Kerala where significant changes have occurred over the past 100 years.

Sessions for Computer Science and Engineering (CSE) and Electrical Engineering (EE):

The branch-specific sessions introduced the students of CSE to multiple scopes of work after their BTech. In the morning, students were put forth to companies that included a variety of areas of industry for both CSE & EE undergraduates. Starting with Bosch Security and moving on to Samsung Research, Arista Networks, Xilinx and ARM, the presenters showcased multiple aspects of the growing technologies across the industries and how they were adapting to newer trends while still staying by their company philosophy. Bosch Security kicked off the sessions with its security solutions that focused on ensuring secure data across companies, cloud, etc. using various cryptographic techniques. They also had a separate division which focused on manipulating data for use in Natural Language Processing (NLP) using what was described pretty briefly as Knowledge Graphs. This was followed by the presentation by Samsung Research, located at Bengaluru, who described the design process in the industry and showcased the functionalities present in the market that was based on the work done by the team. Then it was the turn of Arista Networks who talked about the ever so growing interconnected world and the role of Cloud Networking and WiFi 6 (the latest standard in WiFi technologies) that would become the foundations for more technologies yet to come. Moving on to the hardware section, we had Xilinx Inc who, realising the trend of Artificial Intelligence, are gearing up their hardware and FPGAs to cater to the growing needs for computational power. The event was concluded with a talk by ARM, leading the ARM processor development, which was attended by faculty members of both streams.

For the afternoon sessions, both CSE and EE had different sessions of talks. The CSE stream, with attendees from faculty and students, saw a variety of presenters from a variety of companies dealing with cutting edge technologies of the modern world. There were 4 such companies: Multicoreware, Ping Identity, Mindtree, Hasura. The session was kicked off by our people, as was the schedule, with Dr. Piyush P Kurur and student presenter Vismay Raj T. On the one hand, Dr. Piyush explained in brief about the academic curriculum of CSE as a stream offered by IIT Palakkad and on the other hand, we had Vismay, Final year CSE Undergraduate presenting his project on a compiler made in SML and later Haskell that worked on a language for ease of use of C. Among the industry presentations, the first to talk was Mr. Benuraj representing Multicoreware. Being a company known for the open-source contribution including the main contributors to H265, the successor to H264 video encoding, Multicoreware also had a part in developing AI-capable hardware and were known to house a large group from hardware to AI & ML engineers. This was followed by Ping Intelligence and the presenter, Mr. Uday, who represented a company based in Bengaluru founded by him and later bought by Ping. Among

other companies founded in his career, this one had focused on getting Indian talent to tackling the growing need and maintenance of API Security in our economies, Mr. Uday mentioned. Then we moved on to Mindtree, a company focusing on providing AI-based solutions and selling them to its clients as per their requirements with notable examples being railway track inspection using computer vision (OpenCV) and detecting shoplifting incidents from CCTV footage. Last but not least, we had Mr. Shahidh, an IITM Alumni, talking about Hasura, the company that he worked for. Hasura, a startup with roots in IITM, looks towards building a better web by contributing to open-source and catering to the growth of functional programming in industries and providing to clients with server request handling using the growing trend of GraphQL methods. With a wide variety of companies and a unique set of individuals representing them, the Industry-Academia Conclave of IIT Palakkad surely witnessed extensive opportunities in the outside world. From ever-growing fields of hardware systems and AI & ML to particular niches like API security and Hasura, the range being exposed is indeed vast and would cater to the needs of almost every student stepping out from the institute in the coming years.

The students of the Electrical Engineering department were exposed to a multitude of fields that they could opt for after their B.Tech. The morning session saw speakers cater to general and branch-specific topics, introducing their present work in the industry and giving their opinion on the comparison and contrast between industry and academia. The afternoon session had both student speakers who presented their work to the industry and a few industry representatives who shared their active areas of work and gave their views and expectations from a student preparing for the industry. Our dear faculty Dr. Arvind Ajoy, representing the Electrical Engineering department, introduced the department faculties and their areas of research to the industry along with a visual tour of the inhouse facilities at IIT Palakkad and future perspectives of IIT Palakkad Electrical Engineering department.

The first speaker from the industry was Dr. Venkata Narayana Rao Vanukuru from GlobalFoundries. He is a senior technical staff at GlobalFoundries. The technical aspect of his talk included microwave passive devices in silicon and his prime area of research is the design and optimization of integrated spiral inductors. His talk also included the challenges faced in his line of industry and expectations of the industry from students. He conveyed the message that it is more important for students to learn the basics well than aiming to have a lot of exposure to the tools used in the industry. This statement although doesn't null the fact that the students needn't have exposure to some basic tools, but rather this statement was intended to convey a message to the students that they don't need to learn all the software available. He further implored us to be a team player and develop empathy for each other since it is always a group of minds working together to solve a problem in the industry. The next talk was delivered by Mr. Sudarshan, Director of Qubercomm technologies. His talk focussed both on technical aspects and non-technical aspects of the industry. His field of work includes wireless networking, routing, and switching. His ideologies too were inline with Dr. Venkata Rao, stating that students at this age are expected to grow as passionate candidates with a firm knowledge in fundamentals. A

personal learning experience from Mr. Sudarshan is his extracurricular interest in poetry and literature which was well demonstrated in his presentation. This could highlight the overall development of a person.

The last speaker from the industry was Dr. Krishna Rao Vijayanagar. Dr. Krishna Rao is the product manager at the MediaMelon SmartSight Analytics. He works in the field of developing media players and their streaming of live events and related protocols, from its transmission from the live site to satellite and its reception at the respective ground station to a video streaming app. The major challenge in this industry is catering to a huge crowd, say like the IPL (Indian Premier League) final which streamed over 11 million viewers at the same time, which emphasises the need for efficient resource management to prevent buffering. A personal learning experience for the students was his career itself. He started in a completely different field from what he is doing today, but it was his hard work and jovial attitude that helped him come this far. He too emphasised on learning on the go in the industry while getting the fundamentals right at this age. He also believes in adapting to the situation which he demonstrated in his career where he switched roles in the team depending on the need of the hour. He reiterated the need for good coding practices and skills for the students in the coming years. The two student presenters from the Electrical Engineering department were Vishal Choudhary and Vishnu Vaidya- both final year students. Vishal Choudhary worked on Calibration of Phased Array Antennas using Phase Retrieval Techniques and Vishnu Vaidya worked on Resource Allocation Algorithms for Ultra Reliable Low Latency Communication (URLLC).

Sessions for Mechanical Engineering:

For the Mechanical Engineering stream, the session embarked with a short introductory speech of Mechanical engineering department by our faculty member Dr. Ganesh Natarajan which was followed by individual talks by the industry delegates.

First to speak was Dr. U. Chandrasekhar, Program Director, Addwize at Wipro 3D & Wipro Infrastructure Engineering. He talked on collaborative research and projects in system design, advanced materials, and additive manufacturing and advised to opt for a long term internship where one can work on relevant industry projects. Dr. Supriya Sarkar, Head of R&D Center, Sandvik Materials Technology, Pune presented next on the research activities of Sandvik Materials Technology. Following was Mr. Murugesan Seerangan, Senior Engineer at GE Power. He spoke about understanding the institute's research infrastructure and identifying research collaboration opportunities related to power generation equipment, materials, advanced manufacturing, data analytics, additive, coating, and lifting, etc. Mr. Subrata Patra, Founder, and CEO of Awkiwc Technologies presented after this. He spoke on the significance of location intelligence (the process of deriving meaningful insights from geospatial data relationships to solve a particular problem) and gave an example of how location intelligence can be used for efficient assignment of area to a delivery person for minimum response time and travel. Mr. K. J. Ganesh, Managing Director of Indo Shell Cast Pvt Ltd who gave an insight into the various

opportunities in the 3D printing industry. The session concluded with a presentation by Mr. S. Parthiban, the Technical Head of the R&D team of Quantum Orthopedics, who talked on surface engineering in bio-implants.

Concluding Session

Poster Presentation was another major attraction of the Conclave. A wide collection of posters from all four branches were put up for display throughout the day. These were prepared by a collective effort from the students, research scholars and faculty of IIT Palakkad. They gave an insight into the research works going on in the institute and what all we can look forward to.

The closing session for the day began with a talk by Prof. P. B. Sunil Kumar, Director, followed by a question and answer session with the personnel from the industry and our students along with faculty. The major take away was that the industry doesn't expect the students to be well versed with all the tools available in the market, rather, they know some widely used tools and moreover, be well versed with the basic fundamental concepts. Everything else can be grasped on the way after joining the industry. Another suggestion from their side was that students need to be more open and interact with representatives from the industry more freely. They also put forth several opportunities for our students that would give them a flavor of what an industrial environment would entail. The program concluded with a vote of thanks by our faculty member Dr. Sovan Lal Das.

Summary and Student Feedback

It was a novel and enlightening experience for the students to understand how an industry executes and undertakes projects. The event has given insights into an industry lifestyle and opened up new career options for many. Students could get an idea about the challenges faced by the industry. Coordinating the event was also an enjoyable experience. Some of the opinions from the students are:

1. It was fun and nice getting to meet and interact with them. Some of the talks were actually really nice and piqued the interest to explore that field as a career, while some talks could I guess be made more interesting. Would have been better if students had a prior knowledge of the delegates.

Balu V

2. It was awesome. Being a part of the transportation team, talking to every delegate personally for asking their details and make arrangements accordingly, was altogether an enriching experience. Got to learn many new things from my team member Abhishek Bagri.

Varad P Kausadikar

3. The IAC was a wonderful opportunity to know the latest technologies used in the industry and interact with people from different fields. I feel that increased participation and interaction from the students' side could have made the event more fruitful.

Shruti Umat

4. I loved coordinating and conducting IAC2019. The way the whole team of student volunteers were motivated towards the event was just amazing. It was a really good experience to coordinate with the industry experts and to organize this one of a kind event.

Shyam Sundar Goyal

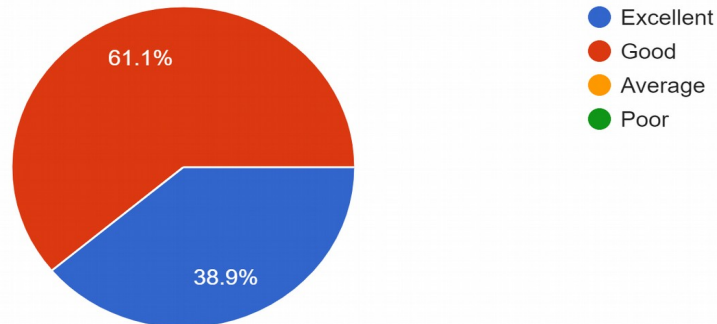
5. They should have explained more about what we should learn to be ready for industry. The time allotted to IAC could have been more, over 3-4 days.

Milind Manoj Kasar

Feedback (anonymous) on the Industry Academia Conclave 2019

How was your overall experience at the Industry Academia Conclave 2019?

18 responses

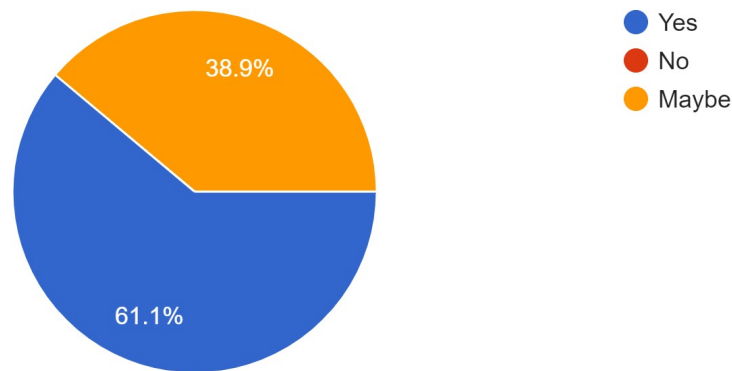


What according to you was the best part of the Conclave?

6. Interactive sessions
7. The way the students ensured the smooth conduct of the event and interactions outside of talks with industry experts.
8. Keynote address by Prof. Mahesh Bapna
9. Student organization
10. Stream-specific session and panel discussion
11. Industrial representatives showed positive signs
12. ME Labs visit along with delegates
13. students participated actively
14. As a first attempt, IAC was a good start
15. Well organized.

Was the intended objective of the Conclave achieved?

18 responses



Please share your descriptive feedback/ suggestions to help us make the Conclave even better, the next time.

- Well organized event, time might be a little less.
- The industry participants seemed positive and on their own they expressed their willingness to offer internships. A few companies also said they are willing to host PhD students for up to two years. Student volunteers have done an excellent job in organizing the event. In summary, the event was a success
- I attended two talks in Civil section. I felt speakers did not understand the objective of the meeting. They were promoting their companies and products instead of giving insights and suggestions for working together. Instead of organising department wise interaction, it has to be industry-wise - make it interdisciplinary. As we are having M.Sc programs in sciences, please involve science departments next time. Definitely, they will look for job prospects.
- 1. The industry experts were all not clear about what the purpose of the conclave was. Only a handful spoke of potential specific research collaborations. It would be better if we stress a priori that the conclave is meant to be a platform for discussion on topics of mutual interest and possible collaborations/internships. 2. It would be good to contact the industry experts well ahead (2-3 before) so that we would have a greater representation across sub-disciplines (for eg. most speakers were in the manufacturing realm in Mech. Engg.) 3. The students did a wonderful job in coordinating the event. They could be given more responsibility with the CDC

monitoring them.

- More time for interactive sessions with industry participants.
- Maintaining time could have been better. Several talks exceeded the stipulated time, particularly in the Welcome session.
- It would be better if we can plan (for next conclave) for separate slot (~ 1 hr duration) to facilitate interaction with the industrial representatives and the faculties which works in there domain/interest. Some industrial presentation can be skipped and can utilize those slots for this interaction.
- My few suggestions are
 1. We may showcase our UG and PG student's visible outputs like mini(term) projects, innovation projects, and final year projects.
 2. Student's representative may present about UG and PG students capabilities, strengths and achievements.
- The conclave achieved what it set out to do by putting industry and academia representatives together in an atmosphere of research, academic and career development for students. There are already a few industries that have expressed interest in working together with some faculty members apart from offering internships, industrial visits etc.
- 1. Time schedule could have been better maintained.
 2. There could be shorter meet where we call one or two or three companies and conduct the same in a 1-2 hour duration.
- 1. The success/effectiveness of IAC depends on follow-up with the industry and further developments. I think we need to evaluate the outcome after a few months.
 2. In my opinion, keynote speech was not satisfying the expectation. Basically the keynote speaker was trying to sell his own project in IIT Jodhpur, which has flaws and apparently was not a success in Jodhpur.
 3. Though our research scholars enthusiastically put up posters and waited for long even skipping their lunch, not even a single industry visitor went to any posters - This was a big disappointment to research scholars. This kind of disappointment will affect their enthusiasm in participating in such events in future. We have to take measures to ensure that, when poster sessions are organized by research scholars, they will receive due attention by visitors.
- 1. Time schedule could have been better maintained.
 2. There could be shorter meet where we call one or two or three companies and conduct the same in a 1-2 hour duration.