

SPCAI INSIGHT

Anniversary
Edition



ISSUE - 5 (October 2021 – December 2021)



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From The Editor in Chief

Welcome to the fifth (and anniversary) edition of the SPCA I Quarterly Newsletter!

Bringing you the fifth edition of SPCA I's quarterly newsletter gives me great pleasure. Communication is the first pillar of growth and success of a team, followed by the celebration of small and significant achievements alike. What you have in your hands right now (or possibly on your screens) is the special anniversary edition of the SPCA I newsletter, which highlights our important events, activities, and achievements over the last year.

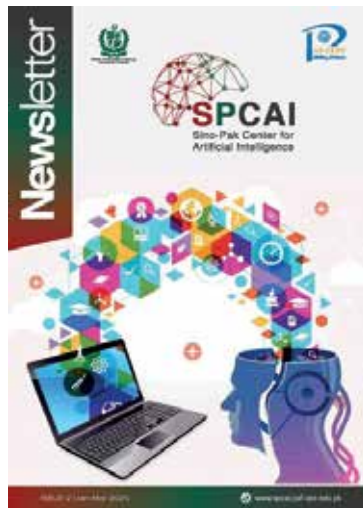
This newsletter aims to strengthen our bond in the constant grind of our daily work lives. It keeps us all updated regarding breakthroughs in the shape of projects, research work, industry/academia collaborations, and mega-events that originated from the platform of SPCA I, PAF-IAST and ensures that we all have a united front for all future challenges. This is not only the platform to celebrate our success and acknowledge our colleagues for their outstanding work but also a medium to understand the overall performance of our center. I hope this effort will help us gain a more robust perspective about SPCA I, PAF-IAST, inspire breakthrough ideas, and give us more reasons to celebrate together.

I consider it an honor to be the editor-in-chief of this newsletter. With my team of motivated and qualified editors, I look forward to making it a marquee platform for all.

We appreciate your opinion and feedback, so please contact us at info@spcai.paf-iaast.edu.pk.

Dr. Atif Mashkoo
Managing Director
SPCA I, PAF-IAST
Editor-in-Chief

Last Four Editions of Quarterly Newsletters



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Industrial and Academia Collaborations

The partnership's objective with National and International institutes/industries is to achieve mutual academic and industrial goals in teaching, research, and areas of common interest regarding Joint Academic Programs, Research Collaborations and Academic and Scholarly Exchanges, with the overall objective of establishing SPCA I.

SPCAI and ATS Sign MoU for Future Collaboration

SPCAI and Advanced Telecom Services (ATS) join hands to promote Artificial Intelligence (AI) and AI-enabled services in Pakistan. The MOU signing ceremony was held on April 15, 2021, at SPCA I, Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology, Mang, Haripur. ATS is a technology consulting company established in 2011 in WA, USA that offers Professional Engineering services in Telecommunication, IT, and Artificial Intelligence. ATS is a Subject Matter Expert in Digital Wireless, Cloud, and Artificial Intelligence. The primary objectives of this MoU are:

1. To provide technical assistance and resources to assist in collaborative research & development, training, and skills development.
2. To promote research & development of AI and AI-enabled services arising in Pakistan, particularly in different domains of AI
3. To facilitate mutual sharing of resources like labs, training, internships, etc., focusing on AI.
4. To jointly publish research in papers, journals, blogs and potentially file patents
5. To jointly develop project proposals for securing funding from national and international organizations.
6. Expand the cooperation to assist other public sector organizations in promoting research and development in AI and ML.



SPCAI and NESCOM Agree for Scientific Contribution



An MoU is signed on September 7, 2021 between the Sino-Pak Center for Artificial Intelligence (SPCA I), PAF-IAST, and National Engineering & Scientific Commission (NESCOM) based on the mutual understanding. Both sides agreed to develop the following areas in cooperation:

1. Intelligent Field Robotics
2. Smart City and Urban Planning
3. Intelligent Systems Design (Intelligent Industrial and Production Technologies)
4. Intelligent Biomedical Applications (Imaging, Assistive Bionics, Diagnostics, etc.)
5. Internet of Things
6. Deep Learning
7. Intelligent and optimization applications in the energy domain
8. Intelligent pattern recognition-based security application
9. Neuro-Computation

Both SPCA I and NESCOM agreed to share the field expertise and jointly write project proposals. Based on mutual understanding, these proposals shall be funded by NESCOM or SPCA I. SPCA I shall provide the trained human resource and expertise in the projects as desired by NESCOM. NESCOM agreed to provide support to research students in the future.

SPCAI Extends Global Outreach to Lenovo



A memorandum of understanding (MoU) was signed on September 9, 2021, between the Sino-Pak Center for Artificial Intelligence (SPCAI), PAF-IAST, and Lenovo Global Technology HK Limited based on the mutual understanding. Under this agreement, Lenovo and SPCA I agreed to strengthen the active participation and exploitation of education and research sectors' opportunities to develop products, technologies, and solutions, particularly in the area of high-performance computing. Lenovo also agreed to support SPCA I in the global outreach and networking.

SPCAI Welcomes AI-Khwarizmi Institute for Effective Collaboration

AI-Khwarizmi Institute of Computer Science, UET Lahore, has actively participated in proposal preparation against SPCA I-RG-1. Dr. Sohail Khan, Associate Professor, SPCA I, has worked on thirteen tentative ideas with Dr. Usman Ghani, Manager Research, KICS. Out of which, one proposal was selected and refined by Dr. Sohail Khan with support from KICS. The project proposal was submitted and passed the different stages of the evaluation. The project is titled "design of a computation multi-regional solar power forecasting framework for Pakistan". Both institutes are committed to effective collaboration based on the research projects, faculty/students exchange, and expertise sharing.



SPCAI and NCP Join Hands

SPCA I, PAF-IAST is proud to announce the signing of Memorandum of Understanding (MoU) with the National Center for Physics (NCP). The event held on October 21, 2021, at PAF-IAST. Both institutes are agreed to develop applications in Medical Imaging, Biomedical, High-Performance Computing (HPC), and Physical Sciences. NCP also visited the data center at PAF-IAST and expressed significant interest in sharing and strengthening HPC-related expertise.



Delegates from Industry and Academia Visited SPCAI, PAF-IASST

A Delegation of AI professionals from NESCOM Visits SPCAI



A delegation from the National Engineering & Scientific Commission (NESCOM) visited PAF-IASST to tour the facility and exchange ideas. During their visit, the delegation showed interest in our AI-based research labs, particularly those related to robotics and deep learning. They also pledged to support our MS students in completing their future theses and studies. The visit also included a preliminary discussion on NESCOM Academia Grant – a program under which NESCOM provides projects to academic institutions. The tour was followed up with the signing of an MoU between PAF-IASST and NESCOM to propel partnerships and collaborations between both organizations in strategic areas and academic interests

A Delegation from Medical Imaging and Diagnostic MID Laboratory visits SPCAI, PAF-IASST



SPCAI, PAF-IASST on Friday, July 9, 2021. This visit aimed to explore areas of common interest to collaborate. Following are some mutual points discussed in the meeting, which can benefit both SPCAI and MID lab in the long term.

1. Joint training programs for both specialized and general trainees
2. Joint local and international research proposals, Including Internal call for proposals and HEC
3. MID Lab offered SPCAI to become a part of their startup of AI Care Pvt Ltd
4. SPCAI can explore areas where MID lab can benefit from services, including computing requirements and software development.
5. Exploring mutually decided areas like precision agriculture and industry automation

Team Forbmax visits SPCA, PAF-IAST

A team from Forbmax Solutions visited SPCA on August 11, 2021, and discussed the various aspects of high-performance computing (HPC), including tools and techniques for the deployment of open source applications and services on such platforms different deployment standards. Forbmax team also shared their experience of providing HPC-related services in Pakistan and other countries. Some other key points were also discussed as a part of the meeting agenda, which include:

1. Current AI and HPC telemetry and dynamics for PAF-IAST
2. Discussion on current AI and HPC market in Pakistan by industry verticals



3. Go-to-Market strategy for HPC, including a marketing plan
4. Cloud readiness for HPC application



SPCAI faculty exchanged healthy discussions with the Forbmax team regarding the HPC and its significance in AI-related applications. Forbmax agreed to provide HPC-related consultancy services and training to the SPCA team. The meeting ended by emphasizing the need to establish a formal agreement between SPCA and Forbmax for future collaborations.

Team Sybrid Visits SPCA, PAF-IAST

A team from Sybrid Pvt Ltd – A Lakson Group Company visited PAF-IAST and SPCA on August 11, 2021, discussing potential collaboration areas for research and product development purposes. Sybrid agreed to collaborate with the PAF-IAST and SPCA in the joint projects and initiatives relevant to mutual areas of interest, including natural language processing, smart agriculture, and cybersecurity.



Chancellor C@SE Visits SPCA, PAF-IAST

Professor Dr. Shoab Ahmed Khan – Chancellor – C@SE and CEO – Center of Advanced Research in Engineering (CARE) visited PAF-IAST and SPCA on August 13, 2021. Following agenda points were discussed in the meeting chaired by Dr. Mohammad Mujahid – Rector-PAF-IAST:



1. To cooperate within IoT related research in product development
2. To further intensify AI-related ties between the two institutions
3. To join hands-on consensus development related to AI at the national level

SPCAI, PAF-IAST Welcomes Pro-Rector NUST



Dr. Osman Hasan– Pro-Rector (Academics) – National University of Sciences and Technology (NUST) visited PAF-IAST and SPCA on August 24, 2021 and discussed the potential areas of collaboration for research and production development purposes. He agreed to collaborate with PAF-IAST and SPCA in the joint projects and initiatives relevant to mutual areas of interest.

CEO, DPL Visits SPCA and PAF-IAST

Chief Executive Officer (CEO), DPL, Mr. Syed Ahmad visits SPCA, PAF-IAST on August 27, 2021, and discussed the potential areas of collaboration for research and production development purposes and how engagement with the industries can be increased. The participants also discussed how SPCA, PAF-IAST can mark their footprint in Pakistan's industrial sector using the Pakistan Software House Association platform. Dr. Mohammad Mujahid (Rector, PAF-IAST) thanks Mr. Syed Ahmad for the time he spared for this visit and ensured continuous interaction in the future.



RISE Research Center, Virtual Visit

Dr. Yasar gave a presentation about the research profile of the Robotics and Intelligent Systems Engineering (RISE) Laboratory. Both sides exchanged discussions on topics of mutual interest, including robotics, artificial intelligence, and computer vision-related applications. SPCAI is looking forward to building an effective collaboration with the RISE enter based on joint research projects, faculty/students exchange, and expertise sharing. Dr. Yasar is also a member of the SPCAI international advisory board.

SPCAI, PAF-IASST Welcomes a Delegation from PHC

A delegation from Pak Health Consultants (PHC) led by Mr. Fahad Shahab Kakakhel, the founder and CEO, visited SPCAI, PAF-IASST, on Tuesday, November 16, 2021. PHC provides services and Application Programming Interface (APIs) to different hospitals in the region and is actively working with doctors on creating a recommended system for patients that can actively guide them to the best-suited doctor and service in their area.

A productive discussion was done between SPCAI and PHC in which both parties agreed to join hands for digitizing the local health system and take advantage of each other's expertise. An MOU will also be signed between the two organization



SPCAI/PAF-IASST Outgoing Visits

Managing Director, SPCA I invited by the Rotary Club Rawalpindi in their Guest Speaker's Meeting



Guest Speaker Meeting of Rotary Club of Rawalpindi was held on Monday, August 30, 2021, at Rawalpindi Gymkhana Club. Dr. Atif Mashkooor (Managing Director-SPCAI) was the guest speaker of the occasion. The meeting was presided over by Mr. Munir Ahmed Tanoli (President Rotary Club of Rawalpindi). After the formal introduction, Dr. Atif Mashkooor deliberated upon the future scope of Artificial Intelligence in various industries and emphasized the role of AI in the overall socio-economic setting of Pakistan. He further spoke on the significance of AI and advised the youth to embrace AI as it is the future. He also answered many questions asked by participants. After the president's formal vote of thanks, a souvenir was also presented to Dr. Atif Mashkooor.

A team from SPCA I Visits Capital Smart City

A team from Sino-Pak Center for Artificial Intelligence (SPCAI), PAF-IASST, visited Capital Smart City on August 23, 2021, and met with Mr. Muhammad Aslam Malik (Group COO). The points discussed were as follows:

1. Dr. Atif Mashkooor- Managing Director SPCA I presented the center, activities, projects, and National Artificial Intelligence Forum 2021.
2. Potential areas of collaboration for research and product development purposes were discussed.
3. An umbrella MoU may be signed between SPCA I, PAF-IASST, and Capital Smart City for various ventures and activities which could be of interest and/ or relevance to SPCA I.
4. SPCA I and Capital Smart City will join hands at National Artificial Intelligence Forum 2021.



A team from SPCA I Visits Pakistan Software Export Board (PSEB)

A team from SPCA I, PAF-IAST, Visited Pakistan Software Export Board (PSEB) on August 23, 2021, met Mr. Osman Nasir – Managing Director, and Mr. Syed Ali Abbas Hasani – Director Operations & Administration. The points discussed were as follows:

1. Dr. Atif Mashkoo r – Managing Director SPCA I, PAF-IAST presented the center, its activities, projects, and National Artificial Intelligence Forum 2021.
2. An umbrella MoU may be signed between SPCA I, PAF-IAST, and PSEB for various ventures and activities which could be of interest and/ or relevance to SPCA I, PAF-IAST.
3. SPCA I, PAF-IAST, and PSEB will join hands at National Artificial Intelligence Forum 2021.



A team from PAF-IAST and SPCA I Visits Center for Advanced Research in Engineering (CARE)

A team from PAF-IAST and SPCA I Visited CARE on August 20, 2021, and met Professor Dr. Shoab Ahmed Khan – Chancellor – C@SE and CEO – Center for Advanced Research in Engineering. The points discussed were as follows:

1. CARE team presented their projects and gave SPCA I a detailed briefing on their IoT projects.
2. MD SPCA I presented the center, its activities, and IoT projects.
3. Both teams explored common areas of interest in IoT and were willing to contribute to joint projects.
4. Dr. Shoab Khan provided guidelines to develop a culture to promote product-based research.
5. Both teams agreed to write joint research proposals and explore national and international funding opportunities on advanced applications of IoT and AI such as road safety, vehicular ad hoc networks, healthcare, actuators to control environmental conditions, and predictive maintenance.
6. CARE has shown interest in the technology park at PAF-IAST and exploring other possible commercialization modes of their products through SPCA I.
7. SPCA I and CARE will join hands at NAIF, and CARE is also interested in presenting its products at NAIF 2021.



Management of PAF-IAST and SPCAI Visits Khyber Pakhtunkhwa Information Technology Board (KPITB)

Dr. Atif Maskoor (Managing Director – SPCAI) and Mr. Anwar Amjad (Advisor IT – PAF-IAST) visited KPITB on August 16, 2021. Following points were discussed in the meeting chaired by Dr. Sahibzada Ali Mahmud (Managing Director- KPITB):



1. The clustering of Digital City, NRTC, PAF-IAST ITP, and Kahal Dam into one STZ is principally agreed upon and supported by MD KPITB. However, he will discuss the concept and seek the consent of Minister Mr. Atif Khan and the Secretary.
2. MD KPITB inquired about the acquisition status of Kahal Dam and the plans for construction there since there is some condition of STZA.
3. An umbrella MoU may be signed between PAF-IAST and KPITB for various ventures and activities which could be of interest and/ or relevance to PAF-IAST.
4. A tripartite MoU may be signed between KPITB, PSEB, and PAF-IAST towards setting up a facility operated by PSEB at the PAF-IAST Innovation Technology Park.
5. PAF-IAST may also be considered for providing Trainers/Training under the projects being approved by Government for merged areas.
6. MD KPITB will also be referring PAF-IAST's call for Incubation Service Provider to some potential companies doing good in this domain.
7. MD KPITB recommended considering and focusing on Quantum Computing on similar grounds as AI and Nanotechnology Centers are being given. This area could turn out to be the next Industrial revolution after Industry4.0

Meeting with Chairman Pakistan Science Foundation (PSF)

On July 7, 2021, representatives from SPCAI Ms. Madiha Aslam (Program Manager), Mr. Babar Khan (Marketing Manager), and Mr. Murtaza Noor met Prof. Dr. Shahid Mahmood Baig (Chairman, PSF) at his office in Islamabad. The purpose of this meeting was to brief the Chairman about the upcoming event 'National Artificial intelligence Forum (NAIF) 2021' to be organized by SPCAI, PAF-IAST, and its objectives. During the meeting, a formal application for funding NAIF 2021 was also submitted to the Chairman. Prof. Dr. Shahid Baig extended his full support towards the organizing of NAIF 2021 at SPCAI, PAF-IAST. In the end, Mr. Babar Khan also presented SPCAI's souvenirs to the Chairman, PSF.



SPCAI delegation Visits COMSTECH

A delegation from SPCAI, PAF-IAST, Haripur comprising Ms. Madiha Aslam (Program Manager) and Mr. Babar Khan (Marketing Manager) met Prof. Dr. M. Iqbal Chaudhary, Coordinator General, COMSTECH, at his office in Islamabad on November 23, 2021. The delegation briefed the Coordinator-General about the 'International Exhibition and Workshop on the Role of AI in Healthcare, Agriculture and Energy Sector' that SPCAI plans to organize in collaboration with COMSTECH. Prof. Dr. M. Iqbal Chaudhary appreciated this initiative by the SPCAI and pledged to extend his full support towards organizing the upcoming International Exhibition and Workshop. On this occasion, our team extended a formal invitation to the Coordinator-General to visit the SPCAI, PAF-IAST, which he graciously accepted.



Events Organized by SPCAI

SPCAI Industrial Day: How Artificial Intelligence is Revolutionizing the Pakistani Industry

The SPCAI, under the aegis of PAF-IAST, organized an industrial day with the title 'How Artificial Intelligence is Revolutionizing the Pakistani Industry: Challenges and Opportunities' on April 5 2021. The purpose of the seminar was to gather AI leaders in Pakistan under one roof to help understand how AI is revolutionizing the Pakistani industry and how modern AI trends can be introduced to the local market. About 15 AI-based companies participated in the seminar, and the participants from these companies gave presentations covering the theme of the event. Addressing the audience, Dr. Mohammad Mujahid, Rector PAF-IST, guaranteed complete academic support from SPCAI to the local industry to promote research and development in Pakistan's AI sector. An official from the Ministry of Information Technology and Telecommunication (MoITT) also joined the seminar.

SPCAI Launches Pakistan First National AI Forum

The Federal Education Reporters Association delegation comprising reporters from leading newspapers and electronic media channels visited SPCAI on May 29, 2021. On this occasion, National Artificial Intelligence Forum 2021 was officially launched by the Sino-Pak Centre for Artificial Intelligence PAF-IAST on September 2, 2021, collaborating with the Federal Ministry of Information Technology & Telecommunication. The delegation was briefed about the various programs of PAF-IAST and SPCAI. The delegation visited labs, a data center, and other facilities. They appreciated the state-of-the-art facilities and extended gratitude for the nice hospitality.



First National AI Forum, 2021

On September 2, 2021, the Sino-Pak Center for Artificial Intelligence Center (SPCAI) organized the National Artificial Intelligence Forum (NAIF) 2021 under the auspices of the Ministry of Information Technology and Telecommunication (MoITT), Government of Pakistan, and Pak-Austria Fachhochschule: Institute of Applied Sciences & Technology (PAF-IAST) at PAF-IAST, Haripur.

NAIF was the first of its kind convention in the history of Pakistan, intending to gather policymakers, regulators, practitioners, experts, innovators, end-users, investor groups, researchers, educators, entrepreneurs, interested public, and representatives from various industries from Pakistan and abroad under one roof to initiate a grand National discourse about the importance and effectiveness of AI in socio-economic settings. The forum was an effort to develop an awareness of the role and impact of AI in Pakistani society and industry and industrial processes, social fabric, and economic growth.



The forum was open to the public, and approximately 200 professionals from different walks of life were in attendance. SPCAI Managing Director, Dr. Atif Mashkoo, Rector PAF-IAST, Dr. Muhammad Mujahid, and Chairman Prime Minister Task Force on Science and Technology, Prof. Dr. Atta Ur Rehman, were on hand to open the National Artificial Intelligence Forum 2021. For the analysis of all aspects of Artificial Intelligence applications, the NAIF forum was divided into six sections i.e.

1. Introductory Talks
2. Academic Talks
3. Penal Discussion
4. Industrial Talks
5. International Experts Talks
6. National AI Policy Discussion

While welcoming the participants, Dr. Atif Mashkoo, Managing Director SPCAI, shared the AI forum's background, objectives, and importance. The forum was inaugurated by Prof. Dr. Atta Ur Rehman, Chairman Prime Minister Task Force on Science and Technology. He highlighted the importance of artificial intelligence and said that our youth should be equipped with modern knowledge and required skills to lead the country as an innovation-driven economy. Chief guest, Dr. Muhammad Mujahid, Rector PAF-IAST, emphasized skills orientation, focused and relevant research towards solving the problems, and effective academia-industry linkages. He also congratulated the organizers on the successful event.



Lab2Market Exhibition

SPCAI, in collaboration with PAF-IAST, organized a "Lab2Market" event as a part of the National Artificial Intelligence Forum (NAIF). The event's primary purpose was to invite participants from Pakistani universities to showcase their AI-based applied research ideas in the form of projects prototypes. The registration phase for the event started on June 15, 2021. A total of 235 projects were registered for this event in the first phase, where 66 universities from 19 different cities of Pakistan participated during the first phase. After evaluation by a team of experts, 60 projects were shortlisted for the second phase, i.e., Three-Minute Pitch (3MP). The 3MP round was conducted online on August 23, 2021, and after a rigorous evaluation of each project, 28 projects were shortlisted for showcasing at the National Artificial Intelligence Forum 2021.



The experts at the NAIF evaluated the displayed projects in detail, and the top three projects were selected for the award of prizes. The University of Agriculture Faisalabad won the first cash prize of rupees hundred thousand against the 'CNC Smart Farming Bot' project. The second cash prize worth rupees seventy-five thousand was won by Mehran University of Engineering and Technology, Jamshoro, against the project titled 'Design and Progression Analysis of Neuro Rehabilitation System using Machine Learning'. While the third cash prize of rupees fifty thousand was won by the National University of Modern Language Islamabad against the project titled 'Talking Glove for Mute People'. The participating students appreciated the efforts and arrangements made by the organizers. They also desired that such useful events and competitions should be organized on a regular basis to promote AI culture in Pakistan.



SPCAI Delegates Show Up in AI Care Industrial Meetup at COMSATS, Islamabad

Medical Imaging and Diagnostics (MID) Lab, National Centre for Artificial Intelligence (NCAI) COMSATS University, has conducted an AI Care SSBC Industrial Meetup on October 26, 2021, at COMSATS, Islamabad. This event aimed to bridge a gap between industry and academia to showcase research-based Lab related products.

Dr. Sohail Khan, Administrator /Senior Faculty, and Ms. Madiha Aslam, Program Manager, attended the session from SPCA. Dr. Sohail presented a detailed introduction about PAF-IAST features and the role of SPCA towards the application of Artificial Intelligence.



SPCAI Gathers Farmers for a Focus Group Discussion

SPCAI, PAF-IAST in collaboration with Sybrid and Concave Agri, has organized a focus group discussion on November 02, 2021, with the farming community at PAF-IAST, Mang Haripur. This meeting aimed to explore the farming community's problems and develop solutions to address their concerns. Following decisions were made in the discussion:

1. The Trio will work jointly on agricultural-related projects/research proposals
2. Establish a soil testing center in the premises of PAF-IAST to address the challenges of timely soil testing for the farming community
3. Establish a Smart Agricultural Lab in the premises of PAF-IAST to facilitate research, advance technologies to enhance agricultural yield, and reduce losses for the farming ecosystem



Organized Conferences and Workshops

DEXA Conference

The International Conference on Database and Expert Systems Applications (DEXA) conference has been an annual international conference that showcases state-of-the-art research activities in the database, information, and knowledge systems. DEXA provides a forum to present research results and examine advanced applications in the field. The conference and its associated workshops offer developers, scientists, and users an opportunity to extensively discuss requirements, problems, and solutions in the database, information, and knowledge systems. The 32nd DEXA Conferences and Workshops were held as a virtual conference during September 27-30, 2021. SPCAI has arranged two international workshops at this conference:

- International Workshop on Artificial Intelligence for Clean, Affordable and Reliable Energy Supply (AI-CARES)
- 1st International Workshop on AI System Engineering: Math, Modelling and Software (AISys 2021)

AI-CARES Workshop

The purpose of the International Workshop on Artificial Intelligence for Clean, Affordable and Reliable Energy Supply (AI-CARES 2021) is to bring together researchers from multiple disciplines to present their proposed and ongoing work regarding the application of machine learning in energy supply systems, including smart cities, smart grids and transport systems suggesting state-of-the-art AI-based solutions to improve energy systems' reliability, efficiency, affordability, and resilience.

AISys 2021 Workshop

This first DEXA workshop on AI system engineering (AISys) aimed at a holistic view addressing the increasing need of interconnecting traditionally separated disciplines such as data analysis, model building and selection, software engineering, deployment, legal aspects, and standards. This workshop stimulated the interdisciplinary discourse between the involved science and engineering disciplines.



SPCAI Webinar Series

SPCAI started a series of webinars last year to discuss and share the latest research works being conducted in key domains relevant to AI and its applications, including (but not limited to) Computer Vision, Deep Learning, Intelligent Systems, Smart City and Urban Planning, Smart Agriculture, Intelligent Biomedical Applications, and Neurocomputing. These webinars are open to the public, and the interested candidates registered freely and participated in the live sessions. In this context sixth webinar of the series was conducted on November 10, 2021. Students and professionals from different walks of life participated in the webinar online.

Agriculture 4.0 – The Future of Farming Technology

Agriculture 4.0 is a term for the next big trends facing the industry, including a greater focus on precision agriculture, the internet of things (IoT), and the use of big data to drive greater business efficiencies in the face of rising populations and climate change. Agriculture 4.0 is the next step forward: a smarter, more efficient industry that uses big data and new technologies to benefit the whole supply chain. This talk aims to understand the concept of Agriculture 4.0 and to know about different trends and technologies under Agriculture 4.0. Discussion about emerging research opportunities and business use cases in smart agriculture.



SPCAI Sino-Pak Center for Artificial Intelligence

WEBINAR

AGRICULTURE 4.0- THE FUTURE OF FARMING TECHNOLOGY

Presenter:
Dr. Ihtisham Ali
Ph.D. in Distributed Systems from Queensland National University, St. Paul, South Korea.
Postdoc Researcher at Sino-Pak Center for Artificial Intelligence (SPCAI), Pak-Austria Fachhochschule, Institute of Applied Sciences and Technology (PAF-IAST)

Date: Wednesday 10th Nov, 2021
Time: 12:00 pm to 01:00 pm (PKT, GMT+5)

www.spcai.paf-iaast.edu.pk | For Registration: <https://bit.ly/SPCAIwebinars>

Past SPCA I Webinars



SPCAI Sino-Pak Center for Artificial Intelligence

WEBINAR

ON USE OF AI FOR LOW VISION REHABILITATION

Presenter:
Dr. Hafsa Ahmad
PhD in Biomechatronics and Robotics, Post-Doc Fellow at SPCA I, PAF-IAST

Date: Thursday May 6th, 2021
Time: 12:00 pm to 01:00 pm (PKT, GMT+5)

www.spcai.paf-iaast.edu.pk | For Registration: <https://bit.ly/SPCAIwebinars>



SPCAI Sino-Pak Center for Artificial Intelligence

WEBINAR

TEXT CLASSIFICATION USING DEEP LEARNING TECHNIQUES

Presenter:
Dr. Muhammad Ilyas Azeem
Ph.D. in Software Engineering from Institute of Software, Chinese Academy of Sciences, Beijing, China.
Assistant Professor at Sino-Pak Center for Artificial Intelligence (SPCAI), Pak-Austria Fachhochschule, Institute of Applied Sciences and Technology (PAF-IAST)

Date: Thursday 17th June, 2021
Time: 12:00 pm to 01:00 pm (PKT, GMT+5)

www.spcai.paf-iaast.edu.pk



SPCAI Sino-Pak Center for Artificial Intelligence

WEBINAR

APPLICATION OF ARTIFICIAL INTELLIGENCE IN PATHOLOGY DETECTION

Presenter:
Dr. Jawad Hussain
Ph.D. in Biomedical Engineering
Postdoctoral Fellow at SPCA I, PAF-IAST

Date: Thursday 3rd June, 2021
Time: 12:00 pm to 01:00 pm (PKT, GMT+5)

www.spcai.paf-iaast.edu.pk



SPCAI Sino-Pak Center for Artificial Intelligence

WEBINAR

ARTIFICIAL INTELLIGENCE OF THINGS: WHEN ARTIFICIAL INTELLIGENCE MEETS THE INTERNET OF THINGS

Presenter:
Dr. Arshad Iqbal
Ph.D. in Electrical and Computer Engineering from Sangji University, Gwangju, Korea.
Assistant Professor at Sino-Pak Center for Artificial Intelligence (SPCAI), Pak-Austria Fachhochschule, Institute of Applied Sciences and Technology (PAF-IAST)

Date: Thursday 29th July, 2021
Time: 12:00 pm (PKT, GMT+5)

www.spcai.paf-iaast.edu.pk | For Registration: <https://bit.ly/SPCAIwebinars>

Master of Science in Artificial Intelligence

SPCAI has offered MS Artificial Intelligence program second batch in December 2021 under the Faculty of Electrical, Computer, IT & Design (FECID) at Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology (PAF-IAST).

The research and development in interdisciplinary domains of artificial intelligence applications can solve many daily routine problems and improve our lifestyle by offering products in many domains such as smart homes, smart cities, smart agriculture, smart vehicles, business intelligence, smart surveillance, and smart health-care. To meet these objectives, it is required to equip our upcoming students with the latest technologies and essential skills in AI, covering both theory and practical aspects. The MS AI program shall enable the students to learn essential theoretical knowledge and learn marketable skills in AI. This program offers introductory courses to understand core concepts of machine learning and specialized elective courses to train students with state-of-the-art skills in AI and teach them how to apply them in inter-disciplinary data science domains. This program will produce AI-trained scientists and engineers who can meet the requirements of AI and data science in the Pakistani industry/globally. It will also help the students who like to start a research-based career and enroll in a Ph.D. program.



Admission Open Spring-2022
Apply Online at: paf-iast-osa.almusnet.com

Last Date to Apply 21st January, 2022

MS Artificial Intelligence
under the Faculty of Electrical, Computer, IT and Design at PAF-IAST

☎ (+92-995)645182, 931853 🌐 www.paf-iast.edu.pk ✉ admissions@paf-iast.edu.pk

The objective of this program is to develop AI-related theoretical and research skills in students. In this context, the two-year program is divided into parts. The first year is dedicated to course work, and the second year is devoted to a research project. In the first year (2 semesters), the students will take fundamental AI courses and electives, enhancing their skills in advanced applications of AI. The students will start working on their thesis in the third semester, continuing in the 4th semester. The students will select among different research projects with industrial or academic collaborations.

Acceptance of SPCA I Research Grant Proposals

SPCAI initiated the first Call for Research Proposal in February 2021. The SPCA I research grant phase 1 (SPCAI-RG-1) is one of the key components of financial assistance from MoITT in establishing the center. It aims to foster academic and industrial collaborations in developing research competencies at SPCA I and to propose solutions that support industrial development.

SPCAI-RG-1 attracted many national research centers and institutes to participate in this call on different AI-related problems. Seventeen proposals were submitted in this call by the SPCA I faculty as Principal Investigator in which other research centers and institutes participated as academic collaborators. 17 different industries also participated as industrial partners. Out of these 17 proposals, 8 were accepted after an extensive review process from the panel of external experts with an approved grading scheme. The final scrutiny led to the selection of the top 7 proposals after undergoing the 3-minute pitch competition. These seven projects were then further scrutinized by the competent authority based upon their industrial readiness level, commercialization, and product aspects based on which following 5 projects were finally selected under SPCA I-RG-1:

- **AI-SOLARCAST:** A step towards mitigation of energy poverty by utilizing artificial intelligence for sustainable supply of solar energy by Dr. Sohail Khan
- **INTERACT:** Intelligent forecasting and control of energy storage for smart buildings by Dr. Sohail Khan
- **IntelliSurv:** An Intelligent Surveillance System for Detection of Anomalies in Real-time Videos by Dr. Fiza Murtaza
- **Sight for blind spot:** A smart rehabilitation training protocol for individuals with Retinal Degenerative Diseases by Dr. Ahmad (Current PI)
- **GESTAR:** Using mm-wave Radar and Ai for Development of New Gesture Language by Dr. Zaffar Haidar Janjua



CALL FOR RESEARCH PROPOSALS

SINO-PAK CENTER FOR ARTIFICIAL INTELLIGENCE RESEARCH GRANT PHASE II, 2022 (SPCAI-RG-II)

Applicant Eligibility

The Principal Investigator (PI) must be a faculty member/engineer of SPCA/PAF-IAST. The Co-PI can be any individual, either from HEC recognized university or industry in Pakistan. The project team may include researchers from more than one university/industry but must have one industrial partner.

Proposal Submission Procedure

For further information & submission of proposals either consult the website on:
<https://spcai.paf-ast.edu.pk/researchproposalcall>
or contact us on info@spcai.paf-ast.edu.pk.

Deadline for the Proposal Submission:
April 25, 2022

Key Features

The SPCA research grant Phase-II (SPCAI-RG-II) is a crucial component of financial assistance from the Ministry of Information Technology and Telecommunication (MoITT). It aims to foster academic and industrial collaborations in developing research competencies at SPCA and proposes solutions that support industrial development. The SPCA-RG-II awards will be granted competitively using merit-based, independent, and transparent evaluation and selection criteria based on international standards. The funding amount can be up to PKR 10 million with a maximum duration of 1 year.

Queries regarding SPCA Research Grant Phase-II may be directed to email: info@spcai.paf-ast.edu.pk

Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology
Khanpur Road, Mang, Haripur, Khyber Pakhtunkhwa

International Exhibition and Workshop on the Role of Artificial Intelligence in Healthcare, Agriculture and Energy Sector



COMSTECH
Organization of Islamic Cooperation Standing Committee on
Scientific and Technological Cooperation



International Exhibition and Workshop on the Role of Artificial Intelligence (IW-RAI) in Healthcare, Agriculture and Energy Sectors

May - June, 2022

Organized by SPCA, PAF-IAST and COMSTECH

Welcoming national and international AI & Data Scientists, academicians, students and industries

The Workshop aims to provide a platform to:

- Highlight the growing AI Industry, cutting edge technologies, and AI research in Pakistan and other OIC countries
- Exchange information on the latest trends in AI and how the trends are re-shaping education sector and industries
- Strengthen international cooperation and partnership for promoting the fair, inclusive, and transparent use of AI.

Explore IW-RAI:



Workshop



Exhibition



Industry/Academia Linkages

Venue: COMSTECH Secretariat, 33-Constitution Avenue, G-5/2, Islamabad Tel: 92 51 9220681-3

Webpage: <https://nationalaiforum.com.pk/>

Event Partners:



For more details:

Sino-Pak Center for Artificial Intelligence (SPCAI), Pak-Austria Fachhochschule:

Institute of Applied Sciences and Technology (PAF-IAST), Mang, Khanpur Road, Haripur, Khyber Pakhtunkhwa.

Contact us at:

+92 300 852 0133 +92 321 546 7389 | info@spcai.paf-iaast.edu.pk www.spcai.paf-iaast.edu.pk

Research Articles

Dr. Atif Mashkooor

1. "A Literature Review of Using Machine Learning in Software Development Life Cycle Stages". IEEE Access 9: 140896-140920 (2021)
2. "Safe and secure cyber-physical systems". J. Softw. Evol. Process. 33(9) (2021)
3. "Ensuring safe and consistent coengineering of cyber-physical production systems: A case study". J. Softw. Evol. Process. 33(9) (2021)
4. "TraceRefiner: An Automated Technique for Refining Coarse-Grained Requirement-to-Class Traces". APSEC 2021: 12-21
5. "Validation of Formal Models by Timed Probabilistic Simulation". ABZ 2021: 81-96
6. "A Conceptual Model for Mitigation of Root Causes of Uncertainty in Cyber-Physical Systems". DEXA Workshops 2021: 9-17
7. "NLP4IP: Natural Language Processing-based Recommendation Approach for Issues Prioritization". SEAA 2021: 99-108
8. "Validation Obligations: A Novel Approach to Check Compliance between Requirements and their Formal Specification". ICSE (NIER) 2021: 1-5
9. "Team-Oriented Consistency Checking of Heterogeneous Engineering Artifacts". ICSE (Companion Volume) 2021: 250-251
10. "TaskAllocator: A Recommendation Approach for Role-based Tasks Allocation in Agile Software Development". ICGSE/ICSSP 2021: 39-49
11. "Do Communities in Developer Interaction Networks align with Subsystem Developer Teams? An Empirical Study of Open Source Systems". ICGSE/ICSSP 2021: 61-71
12. "Timestamp-based Consistency Checking of Collaboratively Developed Engineering Artifacts". ICGSE/ICSSP 2021: 72-82
13. "Hierarchical Distribution of Consistency-relevant Changes in a Collaborative Engineering Environment". ICGSE/ICSSP 2021: 83-93
14. "A Traceability Dataset for Open Source Systems. MSR 2021: 555-559
15. "On the effect of incompleteness to check requirement-to-method traces". SAC 2021: 1465-1474
16. "Instant distribution of consistency-relevant change information in a hierarchical multi-developer engineering environment". SAC 2021: 1572-1575
17. "Database and Expert Systems Applications - DEXA 2021 Workshops - BIOKDD, IWCFs, MLKgraphs, AI-CARES, ProTime, AISys 2021, Virtual Event, September 27-30, 2021, Proceedings". Communications in Computer and Information Science 1479, Springer 2021, ISBN 978-3-030-87100-0 [contents]
18. "Validation Obligations: A Novel Approach to Check Compliance between Requirements and their Formal Specification". CoRR abs/2102.06037 (2021)
19. "TaskAllocator: A Recommendation Approach for Role-based Tasks Allocation in Agile Software Development". CoRR abs/2103.02330 (2021)
20. "Team-oriented Consistency Checking of Heterogeneous Engineering Artifacts". CoRR abs/2103.14860 (2021)
21. "Do Communities in Developer Interaction Networks align with Subsystem Developer Teams? An Empirical Study of Open Source Systems". CoRR abs/2104.03648 (2021)

Dr. Maqbool Khan

1. "Social Media Improves Students' Academic Performance: Exploring the Role of Social Media Adoption in the Open Learning Environment among International Medical Students in China " was published on September 26, 2021 in the Journal of Healthcare.
2. "Assessment of General Populations Knowledge, Attitude, and Perceptions Toward the Coronavirus Disease (COVID-19): A Cross-Sectional Study From Pakistan" was published on December 24, 2021 and published in the Journal of Frontiers in Medicine.
3. "Towards a Reference Software Architecture for Human-AI Teaming in Smart Manufacturing" was accepted on January 19, 2022 and will be presented on May 8-20, 2022 in the 44th International Conference on Software Engineering (ICSE-2022) at Pittsburgh, USA.
4. "Teaming.AI: Enabling Human-AI Teaming Intelligence in Manufacturing" was presented on March 24, 2022 in the 11th International Conference on Interoperability for Enterprise Systems and Applications (IESA-2022) at Valencia, Spain.

Dr. Ehtisham-ul-Haq and Dr. Fiza Murtaza

1. "A Novel Algebraic Technique for Design of Computational Substitution-boxes using Action of Matrices on Galois Field" IEEE Access published on October 29, 2020
2. "A Highly Non-linear Substitution-box (Sbox) Design Using Action of Modular Group on a Projective Line over a Finite Field" published in PLOSE One Journal on November 12, 2020
3. The research paper of Dr. Ehtisham-ul-Haq with the title "Expert-novice classification of the mobile game player using smartphone inertial sensors" was accepted on February 6, 2021, and published in Expert Systems with Applications journal.
4. "Gender Recognition using EEG during Mobile Game Play International Conference on Information Technology (ICIT)" was published on July 15, 2021 in IEEE Journal.
5. The research paper of Dr. Ehtisham-ul-Haq with the title "A decentralized hybrid computing consumer authentication framework for a reliable drone delivery as a service" was accepted and published in PLOS ONE journal on April 30, 2021.
6. Dr. Fiza Murtaza's research paper entitled "T-VLAD: Temporal Vector of Locally Aggregated Descriptor for Multiview Human Action Recognition" was accepted on April 27, 2021, for publication in Special Issue on "Advances in Human Action, Activity and Gesture Recognition (AHAAGR)," Pattern Recognition Letters, Elsevier.
7. "S-THAD: a framework for sensor-based temporal human activity detection from continuous data streams" was accepted on February 26, 2021 and published in the Journal of Ambient Intelligence and Humanized Computing journal.

Dr. Arshad Ahmad

1. "Empirical assessment of machine learning techniques for software requirements risk prediction " was accepted on January 11, 2021 and published in Electronics journal.
2. "Fusion of Machine Learning and Privacy Preserving for Secure Facial Expression Recognition" was accepted on January 30, 2021 and published in Security and Communication Networks journal.
3. "ABioNER: A BERT-Based Model for Arabic Biomedical Named-Entity Recognition" was accepted on March 15, 2021 and published in the Complexity journal.
4. "Election Prediction on Twitter: A Systematic Mapping Study" was accepted on April 08, 2021 and published in the Complexity journal.
5. "Evaluating and Enhancing the Robustness of Sustainable Neural Relationship Classifiers Using Query-Efficient Black-Box Adversarial Attacks" was accepted on May 24, 2021 and published in Sustainability journal.
6. "Analyzing and evaluating critical challenges and practices for software vendor organizations to secure big data on cloud computing: an AHP-based systematic approach" was accepted on July 26, 2021 and published in IEEE Access journal.

Dr. Waqar Mehmood

1. "CMMI Compliant Modernization Framework to Transform Legacy Systems" was accepted on 18 January 2021 and published in the Journal of Intelligent Automation and Soft Computing.
2. "CMMI Compliant Workflow Models to Establish Configuration Management Integrity in Software SMEs" was accepted on 01 March 2021 and published in the Journal of Intelligent Automation and Soft Computing.
3. "Workflow Models to Establish Software Baselines in SSMEs" was accepted on 20 April 2021 and published in the Journal of Intelligent Automation and Soft Computing

Dr. Hafsa Ahmad

1. "An audio-visual motor training improves audio spatial localization skills in individuals with scotomas due to retinal degenerative diseases Acta Psychologica" was accepted in September 2021.

Dr. Arshad Iqbal

1. The research paper of Dr. Arshad Iqbal was accepted in May 2020 to be published in IEEE Internet of Things journal under the title "Spatio-Temporal Medium Access Control for Wireless Powered IoT Networks."

Faculty at SPCA I



Dr. Atif Mashkoo r
Foreign Faculty / Managing Director
Email: atif.mashkoo r@spcai.paf-iast.edu.pk

Dr. Mashkoo r is the founding MD at SPCA I, a Foreign Faculty at PAF-IAST, and a Senior Research Scientist at JKU Linz, Austria. He is also an Adjunct Faculty at ICCBS - one of the premier research establishments in the developing world and a UNESCO center of excellence. He has extensively worked on European-level application-oriented research and development projects in Austria, France, and Portugal. He was the Scientific Head at SCCH, the Austrian center of excellence in data and software science, from 2012 – 2017. He holds Ph.D. from France, and M.S. from Sweden in Computer Science. Additionally, He has also studied Computational Linguistics in Spain.

Research Area:

AI-Inspired Software Engineering	Logical Foundations of Cyber-Physical Systems
Functional Safety & Cybersecurity	Logics, Formalisms & Rigorous Methods
IoT	Model-Driven Engineering & Architecture

Dr. Khan holds a Doctoral degree with distinction in Electric Power Systems from the Technical University of Vienna, Austria, obtained in 2016. He has been working as senior faculty at SPCA I at PAF-IAST since October 2020. Before that, he worked as Scientist from 2016 to 2020 in Austria's leading applied research institute called Austrian Institute of Technology (AIT). There, he worked in the co-funded European and customer-oriented projects in the areas of renewable energy integration in medium and low voltage (MV, LV) distribution systems, frequency stability analysis of transmission systems, virtual inertia support from bulk energy storage systems, and integrated energy systems (combining the district heating networks with power distribution networks). He is actively working on using AI for energy forecasting, machine learning to deal with the uncertainty in energy systems, and cross-cut applications using AI for decision support in urban planning, agriculture, transport, and security-related areas. He is promoting AI for clean, affordable, and reliable energy supply at the center of excellence.



Dr. Sohail Khan
Senior Faculty / Associate Professor
Email: sohail.khan@spcai.paf-iast.edu.pk

Research Area:

Active distribution networks	Energy management systems
Artificial intelligence	Power system design and control



Dr. Ihtisham Ali
Post Doc. Researcher
Email: ihtisham.ali@spcai.paf-iast.edu.pk

Dr. Ali holds a Doctoral degree with distinction in distributed systems from Gyeongsang National University, Jinju, South Korea, in the year 2020. He is holding bachelor's and master's degrees from NWFP agricultural University Peshawar and Institute of Management Sciences, Hayatabad Peshawar, respectively. At present, he has been working as a Postdoc Researcher at SPCA I at PAF-IAST since August 2020.

Research Area:

Fuzzy logic and distributed systems.	Smart cities, and Smart health applications development.
Machine learning algorithms.	

Arshad Iqbal received the Ph.D. degree in electrical and computer engineering at Sungkyunkwan University, Suwon, Korea, in Aug 2020 and the B.S. degree in electrical computer engineering from COMSATS (CIIT), Abbottabad, Pakistan, in 2013. His research interests include wireless LANs, energy-harvesting networks, backscatter communication networks, Internet of Things, sensor networks, resource allocation, Artificial Intelligence / Machine Learning / Reinforcement Learning, and medium access control of wireless communication networks and next-generation communication networks.



Dr. Arshad Iqbal

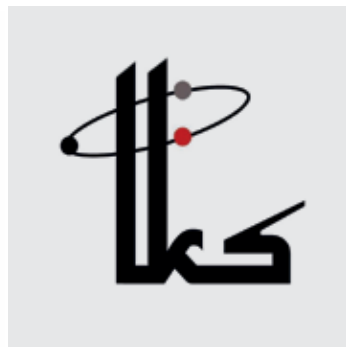
Support Faculty / Assistant Professor

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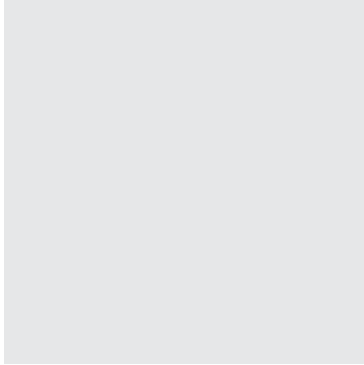
Research Interest:

Artificial Intelligence/Machine Learning/Reinforcement Learning	Next-Generation Communication Networks	Power Saving
Resource Allocation	Sensors Networks	

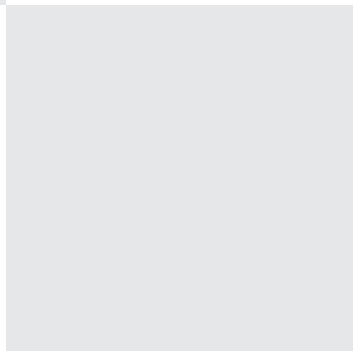
Industrial Partners



Academic Partners



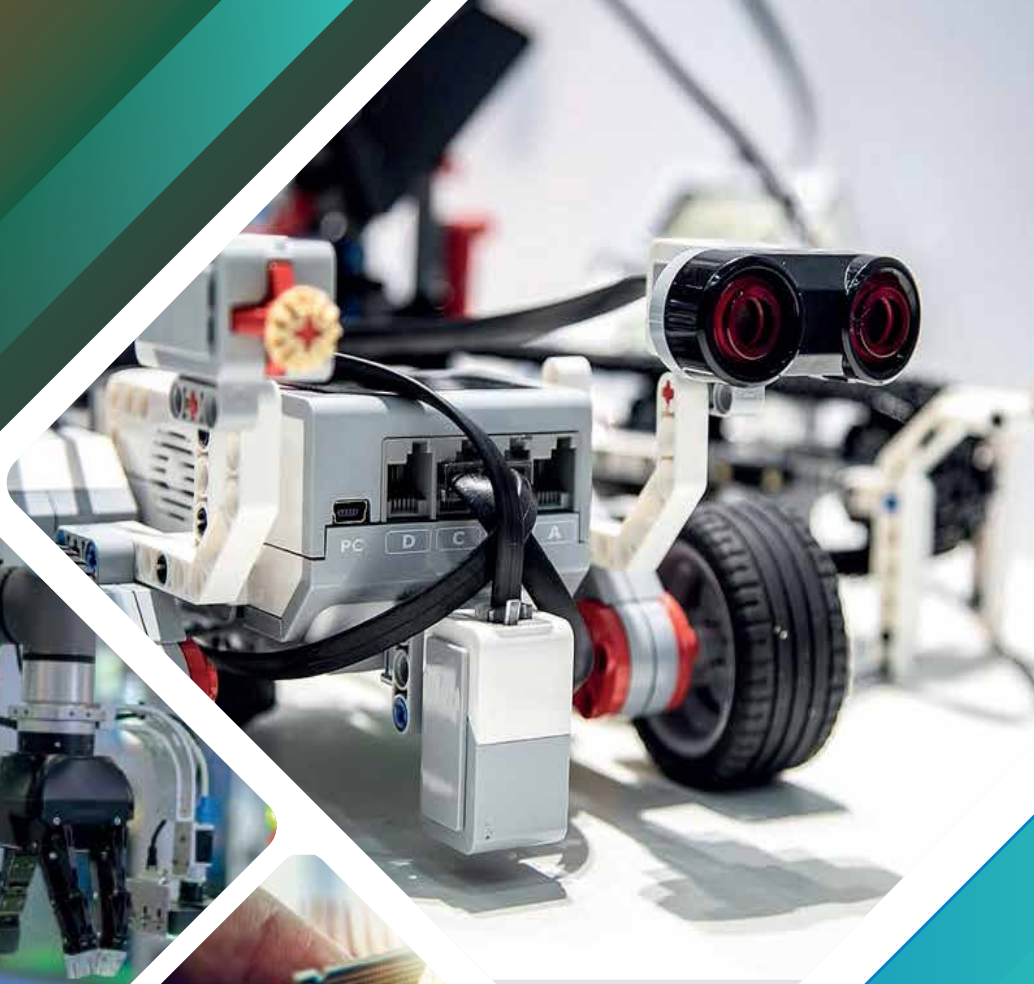
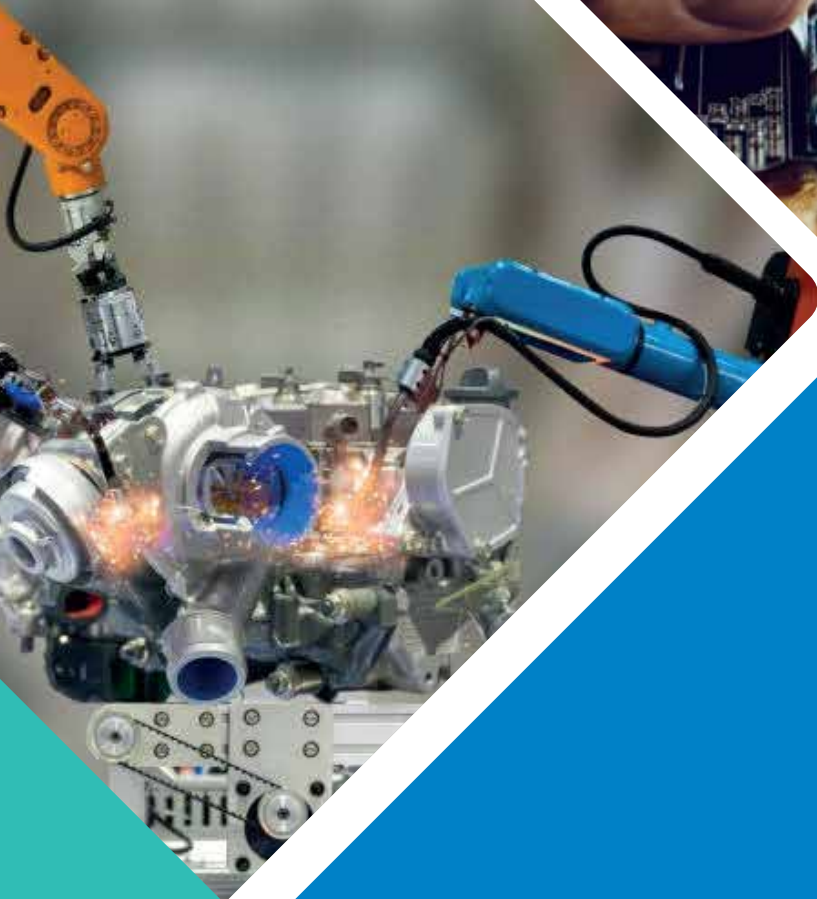
International Partners






SPCAI

Sino-Pak Center for
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