



Frontier Assessments Unit

Situational Intelligence Report

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AI at the Edge of Ethics and Geopolitics:

Navigating the Collaborative Frontiers of ETH Zurich and
China's Defense Academia



Abstract

The relationship between **ETH Zurich**, one of the world's leading universities specializing in science and technology, and the group known as the "**Seven Sons of National Defense**," a collective of top-tier Chinese universities with deep ties to the country's military sector, represents a significant nexus in the global scientific community. These Chinese institutions — **Beihang University, Beijing Institute of Technology, Harbin Engineering University, Harbin Institute of Technology, Nanjing University of Aeronautics and Astronautics, Nanjing University of Science and Technology, and Northwestern Polytechnical University** — are renowned for their extensive research and development in advanced technologies, particularly those with potential military applications. While these collaborations stand as a testament to the increasingly interconnected global research landscape, they also warrant careful scrutiny given China's well-documented strategy of military-civil fusion, which aims to bolster the country's defense capabilities through advancements in science and technology.

Significance of the Academic Nexus

The development and study of advanced AI technologies within this framework of cooperation bring to the fore a host of **ethical, security, and geopolitical considerations**. AI, with its transformative potential, is a strategic focus in the technological race, and its applications span a wide spectrum from benign civilian use to more contentious military purposes. Collaborating with China in this field is particularly sensitive; the nation is vying for global dominance in AI and other technologies to support its strategic geopolitical goals.

For **ETH Zurich** and, by extension, the broader Swiss academic, diplomatic and security community, these collaborations offer unparalleled opportunities for technological advancement. However, they also necessitate a cautious approach and thorough scrutiny to protect Switzerland's long-standing commitment to neutrality, peace, and human rights. Given China's ambitious military-civil fusion strategy and its quest for technological supremacy, the nexus between **ETH Zurich** and the "Seven Sons" is not merely a scientific partnership but a complex arrangement situated at the intersection of technology, politics, and international security. It is incumbent upon Swiss institutions to institute rigorous oversight, transparency, and ethical frameworks in their international collaborations, safeguarding against the inadvertent bolstering of adversarial military capabilities.

The Frontier Assessments Unit's Research Mission

While individual academic projects and scientific collaborations may seem benign, a comprehensive view reveals potential strategic commonalities. The Frontier Assessment Unit leverages advanced AI technology to surface network structures and strategic designs that may be hiding in plain sight. Delving deep into the emergent field of multi-domain network graph analytics, we illuminate the intricacies of vast, intertwined networks. Our innovative approach allows us to place individuals within a broader organizational context, discerning the nature and strength of their connections. We aim to visualize complex threats and offer actionable intelligence empowering Western governments, law enforcement agencies, intelligence services, and armed forces to act decisively.

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Thematic Network Clusters with Potential Strategic Dual-Use Applications

Network Analysis deals with a large amount of data. It can reveal a strategic design behind seemingly unconnected activities that would otherwise go unnoticed in the overwhelming mass of open source data. It is not the data that is hidden but its purpose. The following section identifies thematic clusters of scientific activities that may be linked by a common strategic target.

Robotics and Sensor Technology for ISTAR and Battlefield Dominance

Preliminary network analysis reveals a number of individual studies with significant dual-use potential around robotics and the deployment of sensor technology in operating theaters. These studies yield results that could be applied in ISTAR operations and battlefield dominance.

ETH has a worldwide reputation in this field, pioneering research in autonomous aerial vehicles since the 1980s. Domestic applications of drone technology have traditionally focused on disaster management. ETH's technological prowess in this field has found few direct applications in the Swiss defense forces, who continue to import their modest arsenal of drones from US, Israeli and French manufacturers. This is due primarily to ethical considerations. China's academic institutions, however, closely cooperate with the Chinese defense forces, who are witnessing the skyrocketing influence of drones on contemporary battlefields.

The following list exhibits the most salient research collaborations and the dual-use potential of these studies.

"Scientific exploration of challenging planetary analog environments with a team of legged robots," involves the prestigious **ETH Zurich** in Switzerland and the **State Key Laboratory of Robotics and System at Harbin Institute of Technology** in China. While the primary application appears to be space exploration, the advancements in robotics and AI have significant military applications, particularly in surveillance and remote operations, areas of substantial interest to defense agencies worldwide.

Similarly, the study titled "Spatial-Spectral Transformer for Hyperspectral Image Denoising," resulting from a collaboration between **ETH Zurich** and **Beijing Institute of Technology**, delves into hyperspectral imaging—a technology paramount for reconnaissance missions. This technology, pivotal for both civilian and military intelligence, is integral to modern warfare, enhancing capabilities in target identification and terrain analysis. Further, the research on "Memory-Aided Contrastive Consensus Learning for Co-salient Object Detection," involving entities such as **Nanjing University of Aeronautics and Astronautics** and **ETH Zurich**, explores technologies that could revolutionize surveillance systems. These advancements could potentially be employed in autonomous weaponry and intelligence systems, escalating the prowess of military units.

Moreover, the joint research on "Simultaneous broadband vibration isolation and energy harvesting at low frequencies with quasi-zero stiffness and nonlinear monostability" involves the **School of Aeronautics at Northwestern Polytechnical University** in China, known for its defense projects, and **ETH Zurich**. The outcomes of this research could be applied in the

development of military machinery and defense infrastructure, potentially leading to advancements in stealth technology and energy efficiency in the battlefield.

Research projects like "Simultaneous Terahertz Pulse Generation and Manipulation with Spintronic Coding Surface" and "Satellite-Terrestrial Collaborative Object Detection via Task-Inspired Framework," involving institutions such as **Beihang University** and **Harbin Institute of Technology** along with **ETH Zurich**, touch on critical defense technologies. Terahertz pulse generation can have applications in communication systems and security, while satellite-terrestrial object detection is crucial for intelligence, surveillance, and reconnaissance—a trifecta vital for national security and defense strategies.

The collaboration extends to more advanced control systems in robotics, as seen in "Dynamic Control Barrier Function-based Model Predictive Control to Safety-Critical Obstacle-Avoidance of Mobile Robot," involving **ETH Zurich** and the **Harbin Institute of Technology**. Such technology is not only vital for civilian applications but can be adapted for defense purposes, particularly in developing autonomous systems for threat detection and neutralization.

Material and Environmental Science for Battlefield Management

Even research into materials science, as seen in "Electrochemical 3D printing of silver and nickel microstructures with FluidFM," involving **Nanjing University of Aeronautics and Astronautics** and **ETH Zurich**, can have far-reaching implications. The technology can potentially be used to create new materials for defense purposes, including lightweight armors or components for advanced weaponry.

In the environmental domain, research like "Physicochemical properties of charcoal aerosols derived from biomass pyrolysis affect their ice-nucleating abilities at cirrus and mixed-phase cloud conditions," involving **ETH Zurich** and **Beihang University**, while primarily civilian in nature, could provide insights valuable to military strategies that require an understanding of complex environmental dynamics.

The study "Inversion Method for Multiple Nuclide Source Terms in Nuclear Accidents Based on Deep Learning Fusion Model," though the specific affiliations are truncated, suggests the involvement of deep learning in nuclear scenarios. The dual-use nature of this technology is evident, with potential applications ranging from predicting and managing nuclear accidents to enhancing nuclear warfare strategies.

Lastly, the study "Transpiration-inspired Capillary for Synchronous Synthesis and Patterning of Silver Nanoparticles" involves a collaboration between Chinese institutions and **ETH Zurich**. While the immediate application appears to be in the environmental or manufacturing realm, the advanced material synthesis techniques could be adapted for various applications, including the development of materials for defense.

Artificial Intelligence Enhancing the Dual-Use Potential of Scientific Research

The involvement of Chinese defense-tied universities, or the aforementioned Seven Sons of National Defense, in **cutting-edge AI research**, in collaboration with Swiss institutions, underscores the strategic emphasis China places on AI and related technologies. Here are specific instances highlighting the depth of this focus:

1. "Spatial-Spectral Transformer for Hyperspectral Image Denoising":
 - Affiliations: Beijing Institute of Technology, ETH Zurich. This research delves into enhancing image clarity from hyperspectral data, pivotal for both civilian remote sensing and military surveillance, potentially giving a strategic advantage in intelligence gathering.
2. "Memory-Aided Contrastive Consensus Learning for Co-salient Object Detection":
 - Affiliations: Nanjing University of Aeronautics and Astronautics, ETH Zurich, Inception Institute of Artificial Intelligence, Mohamed bin Zayed University of Artificial Intelligence. Object detection is fundamental in automated systems, finding applications in autonomous vehicles, defense reconnaissance, and even missile guidance, emphasizing the dual-use nature of this technology.
3. "Learning Anchor Transformations for 3D Garment Animation":
 - Affiliations: Tencent AI Lab, ETH Zurich, Nanjing University of Science and Technology. While focused on digital animation, the underlying AI algorithms can be adapted for simulation training programs, virtual reality environments for military strategy, or enhancing digital stealth technologies.
4. "Unified Mask Embedding and Correspondence Learning for Self-Supervised Video Segmentation":
 - Affiliations: Baidu VIS; ReLER, CCAI, Zhejiang University, ETH Zurich, Beijing Institute of Technology. Video segmentation plays a crucial role in surveillance, especially in monitoring contested territories or conflict zones, crowd monitoring, and intelligence extraction from drone footages.
5. "SMAE: Few-shot Learning for HDR Deghosting with Saturation-Aware Masked Autoencoders":
 - Affiliations: Northwestern Polytechnical University, Xidian University, CVL, ETH Zurich. Enhancing image quality through HDR deghosting is vital for clarity in visuals, applicable in satellite imagery, and reconnaissance missions where high-quality data is critical for decision-making.

These collaborations, while fostering scientific advancement and innovation, also pose risks of unintended technology transfers that could contribute to China's military capabilities or surveillance state, given the affiliations with universities known for their defense ties.

Deep Learning at the Crossroads Between Civilian, Military and Authoritarian Applications

The research collaborations between Chinese defense-linked universities and Swiss institutions, particularly in the field of **deep learning**, underscore the strategic emphasis both countries place on this advanced technology. Here are specific instances highlighting this focus:

1. "Inversion Method for Multiple Nuclide Source Terms in Nuclear Accidents Based on Deep Learning Fusion Model":
 - Affiliations: Collaborative Innovation Center of Radiation Medicine of Jiangsu Higher Education Institutions, Department of Nuclear Science and Technology, Nanjing University of Aeronautics and Astronautics, Institute of Environmental Engineering, ETH Zurich, and others. This research, focusing on handling nuclear accidents with deep learning, is critical. While it aims to enhance safety measures, the advanced AI involved could also be adapted for nuclear warfare strategy, raising dual-use concerns.
2. "Learned Smartphone ISP on Mobile GPUs with Deep Learning, Mobile AI & AIM 2022 Challenge: Report":
 - Affiliations: AI Witchlabs, Computer Vision Lab, ETH Zurich, Xiaomi Inc., Sanechips Co. Ltd., Harbin Institute of Technology, Northwestern Polytechnical University, and others. Though primarily aimed at enhancing mobile technology, the deep learning advancements discussed here could be utilized in intelligence operations, especially considering the involvement of companies like Xiaomi, known for their close ties with the Chinese government.
3. "Salient Object Detection in the Deep Learning Era: An In-Depth Survey":
 - Affiliations: ETH Zurich, The Chinese University of Hong Kong, Inception Institute of Artificial Intelligence, Beijing Institute of Technology, and others. Object detection is pivotal in surveillance and reconnaissance systems. Advancements in this field, driven by deep learning, could significantly boost the capabilities of both civilian and military surveillance operations.
4. "Deep Learning for Visual Data Compression":
 - Affiliations: Beijing Institute of Technology, ETH Zürich, University of Illinois at Urbana-Champaign, Tencent, and others. Visual data compression is vital for efficiently transmitting and storing large volumes of data, a common challenge in intelligence and surveillance operations. Enhanced methods can improve real-time data analysis and transmission, crucial in modern warfare.
5. "Guest Editorial: Special Issue on Deep Learning for Video Analysis and Compression":
 - Affiliations: The University of Sydney, Johns Hopkins University, ETH Zurich, KU Leuven, Beijing Institute of Technology. Video analysis is integral to intelligence gathering and surveillance. Deep learning-driven advancements could

potentially lead to more sophisticated autonomous weapons and intelligence systems, raising ethical and security concerns.

These instances of collaborative research in deep learning not only underscore the technological prowess of China and the scholarly excellence of Switzerland but also highlight potential risks. The advancements in deep learning, while propelling sectors like healthcare, finance, and entertainment, also have significant military applications. These range from enhancing cybersecurity defenses to powering autonomous weapon systems and improving intelligence gathering.

Entity-Based Network Nodes with Potential Dual-Use Exploitation Strategies

Besides clusters of thematic activities, network analysis can also unveil the strategic purpose of seemingly unconnected activities involving a specific entity. Given the known strategic purpose of such a network node, the seemingly unconnected activities that directly link to it appear in a different light. The **National University of Defense Technology (NUDT)** of China stands as one of the premier institutions associated with **China's People's Liberation Army (PLA)** and clearly follows the strategic purpose of advancing China's military prowess. The following section groups a number of its scientific collaborations with ETH Zurich that may be pursued for specific military purposes on the Chinese side.

Collaboration with the National University of Defense Technology (NUDT) in Advanced Research Fields

The NUDT's active engagement in cutting-edge research areas, especially when collaborating with prestigious institutions like **ETH Zurich**, underscores the university's thrust on modern technology and its potential applications. However, these collaborations, while indicative of the spirit of global research, come with their own set of risks and concerns.

For instance, the research titled "Within-Camera Multilayer Perceptron DVS Denoising" involves intricate work on camera technology, focusing on denoising, a crucial aspect for clearer image acquisition. Given **NUDT's** involvement, there's a potential for such advancements to be applied in surveillance, military reconnaissance, and intelligence gathering, areas of significant strategic importance to defense agencies.

Similarly, the paper "Low Cost and Latency Event Camera Background Activity Denoising" further delves into enhancing camera technology, with a clear emphasis on reducing costs and latency. Such advancements, while beneficial for civilian applications, could be repurposed for real-time surveillance operations, especially in scenarios demanding rapid response and decision-making.

The research on "Minimal Solvers for Relative Pose Estimation of Multi-Camera Systems using Affine Correspondences" touches upon the realm of multi-camera systems and their relative positioning. This topic is crucial for coordinated surveillance operations, drone swarms, and other defense-related applications where understanding and maintaining the relative poses of multiple cameras is pivotal.

Moreover, the collaboration on "Dynamic Binary Translation for SGX Enclaves" and "SmashEx: Smashing SGX Enclaves Using Exceptions" delves deep into the realms of secure computing, data protection, and potential vulnerabilities in systems. Such research is vital in the era of cyber warfare, where understanding and possibly exploiting system vulnerabilities can provide a significant edge in intelligence operations and cyber defense.

In conclusion, while these collaborations between **NUDT** and **ETH Zurich** signify the convergence of brilliant minds and the shared pursuit of knowledge, they also highlight the thin line between pure academic research and potential dual-use technology. Given **NUDT's** defense orientation and the sensitive nature of the research topics, there's an inherent risk of technology transfer that could bolster military capabilities. As such, institutions like **ETH Zurich** need to be circumspect, ensuring that collaborations are transparent, ethically grounded, and aligned with global peace and security objectives.

The table presents a curated list of research papers that highlight collaborations between **ETH Zurich** and various other academic institutions, with a notable emphasis on China's **NUDT**. Each row of the table displays the title of the research paper followed by the affiliations of the contributing authors. These affiliations span from European institutions, such as the **University of Seville** in Spain and **Graz University of Technology** in Austria, to Asian institutions, prominently featuring the **NUDT** in China. The research topics range from advancements in camera technology and image processing to more complex subjects like binary translation and enclave security. The recurrent involvement of **ETH Zurich** and **NUDT** underscores the profound collaborative ties in the domain of technology and its potential implications.

Within-Camera Multilayer Perceptron DVS Denoising	Robotic and Tech of Computers Group, SCORE Lab, ETSI-EPS, Univ. of Seville (USE), Spain; Inst. of Particle Physics and Astrophysics, ETH Zurich (ETH), Switzerland; Univ. of Zurich and ETH Zurich, Sensors Group, Institute of Neuroinformatics, Switzerland; Sensors Group, Institute of Neuroinformatics, Univ. of Zurich and ETH Zurich, Switzerland; College of Electronic Engineering, National University of Defense Technology (NUDT), China; Univ. of Seville (USE), Robotic and Tech of Computers Group, SCORE Lab, ETSI-EPS, Spain; ETH Zurich (ETH), Inst. of Particle Physics and Astrophysics, Switzerland
Low Cost and Latency Event Camera Background Activity Denoising	College of Computer Science and Technology, National University of Defense Technology, Changsha, Hunan, China; Institute of Neuroinformatics, UZH-ETH, Zurich, Switzerland
Minimal Solvers for Relative Pose Estimation of Multi-Camera Systems using	Institute for Computer Graphics and Vision, Graz University of Technology, Graz, Austria; Beijing, China; Remote Sensing Technology Institute, German Aerospace Center, Weßling, Germany; Department of Computer Science, ETH Zürich, Zürich, Switzerland; National University of Defense Technology

Affine Correspondences	
Dynamic Binary Translation for SGX Enclaves	ETH Zurich, Zurich, Switzerland; National University of Defense Technology, Changsha, China and National University of Singapore, Singapore; National University of Singapore, Singapore
SmashEx: Smashing SGX Enclaves Using Exceptions	National University of Singapore, Singapore, Singapore; National University of Defense Technology, Changsha, China; ETH Zürich, Zürich, Switzerland

Strategic Assessment

The intricate web of collaborations between **ETH Zurich** and the **Seven Sons of National Defense** as well as The **National University of Defense Technology** underscores a critical juncture in global technological advancement and geopolitical dynamics. These joint endeavors, while a testament to the boundless reaches of scientific exploration, sit precariously at the nexus of innovation and security concerns. The transfer of knowledge, particularly in advanced AI technologies, to Chinese institutions deeply entwined with national defense initiatives, amplifies the risk of these innovations being repurposed for military or surveillance applications, contrary to Swiss values and international stances on human rights and privacy.

Given China's ambitious military-civil fusion strategy and its quest for technological supremacy, the ethical implications of such collaborations become even more pronounced. It is incumbent upon Swiss institutions to establish rigorous oversight, transparency, and ethical frameworks in their international collaborations, safeguarding against the inadvertent bolstering of adversarial military capabilities. As the lines between civilian research and military application continue to blur in the realm of AI, striking a balance between fostering scientific innovation and upholding ethical integrity is more critical than ever. This balance is not just about preserving Switzerland's diplomatic principles but about steering the course of global security and shaping the conscience of future technological endeavors.

ANNEX I: Unveiling the Depth of Sino-Swiss Research Collaborations: Dual-Use Dilemmas in Scientific Advancements

In this report, Data Abyss (<https://www.dataabyss.ai/>) played a crucial role in analyzing the patterns of collaboration between ETH Zurich and seven Chinese universities known for their defense ties. These institutions, often called the "Seven Sons of National Defense," include Beihang University, Beijing Institute of Technology, Harbin Engineering University, Harbin Institute of Technology, Nanjing University of Aeronautics and Astronautics, Nanjing University of Science and Technology, and Northwestern Polytechnical University.

Through meticulous data analysis, Data Abyss identified 111 research publications where these Chinese universities collaborated with ETH Zurich. The range of research topics was broad, but notably, several studies had dual-use potential, meaning they could be applied in both civilian and military contexts. For example, research on advanced robotics for space exploration also has implications for military surveillance and remote operations. Similarly, another study focused on enhancing image clarity from hyperspectral data, a technology crucial for reconnaissance missions.

These collaborations highlight the global nature of scientific research and the importance of international academic exchanges. However, they also raise concerns about the potential military applications of these technologies, given the defense affiliations of the Chinese institutions involved. This underscores the need for due diligence and risk assessment in academic partnerships.

Data Abyss, with its mission to be the vanguard of data-driven defense against adversarial intentions, played a pivotal role in this analysis. The organization focuses on protecting national interests, safeguarding knowledge assets, countering adversarial intentions, empowering decision-makers, and shaping a secure future. By analyzing and highlighting these collaborations, Data Abyss contributes to a broader understanding of the implications of international research partnerships, particularly in areas with dual-use technology potential.

Title	Affiliations
Scientific exploration of challenging planetary analog environments with a team of legged robots	ETH Zurich; ETH Zurich; ETH Zurich; ETH Zurich; ETH Zurich; Harbin Institute of Technology; ETH Zurich; University of Bern; University of Basel; ETH Zurich; University of Zurich; Lucerne University of Applied Sciences and Arts; ETH Zurich; ETH Zurich
Surface preparations and durability of iron-based shape memory alloy adhesively-bonded joints	Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; Northwestern Polytechnical University; Delft University of Technology; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich
Spatial-Spectral Transformer for Hyperspectral Image Denoising	Beijing Institute of Technology; Beijing Institute of Technology; ETH Zurich

On Exact Sampling in the Two-Variable Fragment of First-Order Logic	Beihang University; Beihang University; CRRC (China); ETH Zurich; Czech Technical University in Prague
Memory-Aided Contrastive Consensus Learning for Co-salient Object Detection	Nanjing University of Aeronautics and Astronautics; Nanjing University of Aeronautics and Astronautics; ETH Zurich; Inception Institute of Artificial Intelligence; Mohamed bin Zayed University of Artificial Intelligence
Electrodeposited Superhydrophilic/Superhydrophobic Composites for Untethered Multi-Stimuli-Responsive Soft Millirobots	Max Planck Institute for Intelligent Systems; Max Planck Institute for Intelligent Systems; Xi'an Jiaotong University; Max Planck Institute for Intelligent Systems; Beijing Institute of Technology; Xi'an Jiaotong University; Xi'an Jiaotong University; Max Planck Institute for Intelligent Systems; Institute for Biomedical Engineering; ETH Zurich; Koç University
Learning Anchor Transformations for 3D Garment Animation	Tencent (China); Tencent (China); Tencent (China); Tencent (China); ETH Zurich; Nanjing University of Science and Technology; Tencent (China); Tencent (China)
Simultaneous broadband vibration isolation and energy harvesting at low frequencies with quasi-zero stiffness and nonlinear monostability	Shenzhen University; Chinese University of Hong Kong; ETH Zurich; Shenzhen University; Northwestern Polytechnical University; Chinese University of Hong Kong
Unified Mask Embedding and Correspondence Learning for Self-Supervised Video Segmentation	Zhejiang University; Baidu (China); Zhejiang University; ETH Zurich; Beijing Institute of Technology; Zhejiang University
Deep Convolutional Sparse Coding Networks for Interpretable Image Fusion	Xi'an Jiaotong University; ETH Zurich; Xi'an Jiaotong University; Xi'an Jiaotong University; Xi'an Jiaotong University; Xi'an Jiaotong University; Xi'an Jiaotong University; Xi'an Jiaotong University; Xi'an Jiaotong University; Xi'an Jiaotong University; Northwestern Polytechnical University; Research & Development Institute
SMAE: Few-shot Learning for HDR Deghosting with Saturation-Aware Masked Autoencoders	Northwestern Polytechnical University; Xidian University; Xidian University; ETH Zurich; Northwestern Polytechnical University; Northwestern Polytechnical University; ETH Zurich; Northwestern Polytechnical University
Dynamic Control Barrier Function-based Model Predictive Control to Safety-Critical Obstacle-Avoidance of Mobile Robot	University Town of Shenzhen; Tsinghua University; University Town of Shenzhen; Tsinghua University; ETH Zurich; Harbin Institute of Technology; Dahua Technology (China); University Town of Shenzhen; Tsinghua University; University Town of Shenzhen; Tsinghua University
Direct Quantitation of SARS-CoV-2 Virus in Urban Ambient Air via a	ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; Swiss Federal Laboratories for Materials Science and Technology; Guangzhou Experimental

Continuous?Flow Electrochemical Bioassay	Station; Harbin Institute of Technology; ETH Zurich; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; Chinese Academy of Medical Sciences & Peking Union Medical College; Suzhou Institute of Systems Medicine; Shaanxi Normal University; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; Institute of Atmospheric Physics; Chinese Academy of Sciences; Chinese Academy of Medical Sciences & Peking Union Medical College; Suzhou Institute of Systems Medicine; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology
Pore-scale fluid flow simulation coupling lattice Boltzmann method and pore network model	China University of Petroleum, Beijing; Xinyang Normal University; Northwestern Polytechnical University; ETH Zurich
Simultaneous Terahertz Pulse Generation and Manipulation with Spintronic Coding Surface	Beihang University; Beihang University; Beijing Academy of Quantum Information Sciences; ETH Zurich; Capital Normal University; Beihang University; Institute of Physics; Chinese Academy of Sciences; University of Chinese Academy of Sciences; Beihang University; ShanghaiTech University; Institute of Physics; Chinese Academy of Sciences; University of Chinese Academy of Sciences; Songshan Lake Materials Laboratory; Institute of Physics; Chinese Academy of Sciences; Songshan Lake Materials Laboratory; Beihang University; Beijing Academy of Quantum Information Sciences; Capital Normal University; Beihang University; Shanghai Zhangjiang Laboratory; Wuhan National Laboratory for Optoelectronics; Huazhong University of Science and Technology
Lattice Boltzmann modelling of colloidal suspensions drying in porous media accounting for local nanoparticle effects	Northwestern Polytechnical University; ETH Zurich; ETH Zurich; ETH Zurich; China University of Petroleum, Beijing; Los Alamos National Laboratory; Université de Sherbrooke; ETH Zurich
Observation of Spin-Wave Moiré Edge and Cavity Modes in Twisted Magnetic Lattices	Beijing Academy of Quantum Information Sciences; Beihang University; ETH Zurich; University of Perugia; Beijing Academy of Quantum Information Sciences; Southern University of Science and Technology; Beijing Academy of Quantum Information Sciences; Southern University of Science and Technology; Institute of Physics; University of Chinese Academy of Sciences; Beihang University; Institute of Physics; University of Chinese Academy of Sciences; Institute of Physics; University of Chinese Academy of

	Sciences; Beihang University; Beihang University; Beihang University; Beijing Academy of Quantum Information Sciences; Southern University of Science and Technology; Beijing Normal University; Institute of Physics; University of Chinese Academy of Sciences; Institute of Physics; University of Chinese Academy of Sciences; Beijing Academy of Quantum Information Sciences; Southern University of Science and Technology; École Polytechnique Fédérale de Lausanne; Southern University of Science and Technology; Istituto Officina dei Materiali; Beijing Academy of Quantum Information Sciences; Beihang University
Bidirectional Transformer GAN for Long-term Human Motion Prediction	Beihang University; ETH Zurich; Beihang University; Beihang University; University of Trento; University of Trento
Design and fabrication of smooth poly-hypar timber gridshells	Harbin Institute of Technology; ETH Zurich; Chinese University of Hong Kong; University of Hong Kong
Coupled disease-vaccination behavior dynamic analysis and its application in COVID-19 pandemic	University of Fribourg; Northwestern Polytechnical University; Ministry of Industry and Information Technology; University of Fribourg; ETH Zurich; Northwestern Polytechnical University; Ministry of Industry and Information Technology; University of Fribourg; University of Fribourg; Northwestern Polytechnical University; Ministry of Industry and Information Technology; Northwestern Polytechnical University; Ministry of Industry and Information Technology
3D-printed micrometer-scale wireless magnetic cilia with metachronal programmability	Max Planck Institute for Intelligent Systems; Max Planck Institute for Intelligent Systems; Northwestern Polytechnical University; Max Planck Institute for Intelligent Systems; Max Planck Institute for Intelligent Systems; Max Planck Institute for Intelligent Systems; Max Planck Institute for Intelligent Systems; Xi'an Jiaotong University; Max Planck Institute for Intelligent Systems; University of Groningen; Max Planck Institute for Intelligent Systems; Institute for Biomedical Engineering; ETH Zurich; Koç University
Learning Context-Based Nonlocal Entropy Modeling for Image Compression	Chinese University of Hong Kong, Shenzhen; University of Science and Technology of China; Shenzhen Research Institute of Big Data; ETH Zurich; Harbin Institute of Technology; Harbin Institute of Technology; ETH Zurich; Chinese University of Hong Kong, Shenzhen; Shenzhen Research Institute of Big Data
Long-Distance Coherent Propagation of High-Velocity Antiferromagnetic Spin Waves	Beihang University; Beijing Academy of Quantum Information Sciences; ETH Zurich; Beihang University; Tsinghua University; Beihang University; Beijing Academy of Quantum Information Sciences; Southern University of

	Physics and Technology; Moscow Institute of Physics and Technology; Alibaba Group (China); ShanghaiTech University; ETH Zurich; ShanghaiTech University; ShanghaiTech University; Shandong Institute of Automation; Chinese Academy of Sciences; Shandong Institute of Automation; Chinese Academy of Sciences
Contributors	Fluxim (Switzerland); ETH Zurich; Wroc?aw Technology Park; University of Valencia Science Park; Institute of Materials Science; Nanyang Technological University; South China Normal University; Laser Research Institute; Ministry of Industry and Information Technology; Harbin Institute of Technology; Institute of Automation and Control Processes; University of Valencia; Institute of Materials Science; University of Chinese Academy of Sciences; Shanghai Institute of Optics and Fine Mechanics; National Center for Nanoscience and Technology; University of Valencia; Institute of Materials Science; Hankyong National University; Nanyang Technological University; Photonic Science (United Kingdom); Far Eastern Federal University; Institute of Automation and Control Processes; University of Chinese Academy of Sciences; Shanghai Institute of Optics and Fine Mechanics; Peking University; Hong Kong Polytechnic University; Shanghai Institute of Optics and Fine Mechanics; Chinese Academy of Sciences; Peking University; Ministry of Industry and Information Technology; Harbin Institute of Technology; Ministry of Industry and Information Technology; Harbin Institute of Technology; Ministry of Industry and Information Technology; Harbin Institute of Technology; South China Normal University; Laser Research Institute; Ministry of Industry and Information Technology; Harbin Institute of Technology
Satellite-Terrestrial Collaborative Object Detection via Task-Inspired Framework	Harbin Institute of Technology; ETH Zurich; Harbin Institute of Technology; Harbin Institute of Technology; University of Chinese Academy of Sciences; Harbin Institute of Technology
Towards High-quality HDR Deghosting with Conditional Diffusion Models	Northwestern Polytechnical University; Xi'an University of Architecture and Technology; Xi'an University of Architecture and Technology; ETH Zurich; Northwestern Polytechnical University; Xi'an University of Architecture and Technology; ETH Zurich; Northwestern Polytechnical University
Measuring the Consistency and Diversity of 3D Face Generation	University of Science and Technology of China; University of Science and Technology of China; Nanjing University of Science and Technology; ETH Zurich; University of Science and Technology of China; University of Science and Technology of China

Continual Attentive Fusion for Incremental Learning in Semantic Segmentation	Harbin Institute of Technology; University of Trento; Hong Kong University of Science and Technology; University of Hong Kong; University of Trento; Harbin Institute of Technology; ETH Zurich; Inria Grenoble - Rhône-Alpes research centre; French Institute for Research in Computer Science and Automation; University of Trento
Experimental investigation on debonding behavior of Fe-SMA-to-steel joints	Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; Northwestern Polytechnical University; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich
Programmable anisoelectrodeposited modular hydrogel microrobots	Beijing Institute of Technology; Max Planck Institute for Intelligent Systems; Beijing Institute of Technology; Max Planck Institute for Intelligent Systems; Beijing Institute of Technology; Beijing Institute of Technology; Max Planck Institute for Intelligent Systems; Institute for Biomedical Engineering; ETH Zurich; Koç University
The paradoxical relationship between sense of power and creativity: Countervailing pathways and a boundary condition	ETH Zurich; Hong Kong University of Science and Technology; University of Hong Kong; Wilfrid Laurier University; Tianjin University; Shenzhen Institute of Information Technology; Harbin Institute of Technology
Active Perception for Visual-Language Navigation	Beijing Institute of Technology; University of Technology Sydney; Beijing Institute of Technology; City University of Macau; ETH Zurich
Enhanced recyclability of waste plastics for waterproof cementitious composites with polymer-nanosilica hybrids	Zhejiang University; Zhejiang University; Zhejiang University; Zhejiang University; Zhejiang University; Zhejiang University; Tsinghua University; Harbin Institute of Technology; ETH Zurich; Zhejiang University; Zhejiang University
Noncontact 3-D Orientation Control at Microscale: Hydrodynamic Out-of-Plane Rotation and In-Plane Rotation by Compacted Rotational Stage	Ministry of Education of the People's Republic of China; Beijing Advanced Sciences and Innovation Center; Beijing Institute of Technology; Ministry of Education of the People's Republic of China; Beijing Advanced Sciences and Innovation Center; Beijing Institute of Technology; ETH Zurich; Osaka University; Ministry of Education of the People's Republic of China; Beijing Advanced Sciences and Innovation Center; Beijing Institute of Technology; Ministry of Education of the People's Republic of China; Beijing Advanced Sciences and Innovation Center; Beijing Institute of Technology; Ministry of Education of the People's Republic of China; Beijing Advanced Sciences and Innovation Center; Beijing Institute of Technology; Ministry of Education of the People's Republic of China; Beijing Advanced Sciences and Innovation Center; Beijing Institute of Technology; Ministry of Education of the People's Republic of China; Beijing Advanced Sciences and Innovation Center; Beijing Institute of Technology

Electron-beam induced durable immobilization of g-C ₃ N ₄ onto cotton fabric for visible-light photocatalytic purification	Nanjing University of Science and Technology; Shanghai Institute of Applied Physics; Chinese Academy of Sciences; Nanjing University of Science and Technology; Shanghai Institute of Applied Physics; Chinese Academy of Sciences; Shanghai Institute of Applied Physics; Chinese Academy of Sciences; Shanghai Institute of Applied Physics; Chinese Academy of Sciences; Shanghai Institute of Applied Physics; Chinese Academy of Sciences; Shanghai Institute of Applied Physics; Chinese Academy of Sciences; Central South University of Forestry and Technology; ETH Zurich; Shanghai Institute of Applied Physics; Chinese Academy of Sciences; ShanghaiTech University; Shanghai Institute of Applied Physics; Chinese Academy of Sciences
Video Polyp Segmentation: A Deep Learning Perspective	Australian National University; Minjiang University; Johns Hopkins University; ETH Zurich; University of California, Los Angeles; Northwestern Polytechnical University; ETH Zurich
Cross-view panorama image synthesis with progressive attention GANs	Illinois Institute of Technology; Guangdong University of Petrochemical Technology; ETH Zurich; Wuhan University; Guangdong University of Petrochemical Technology; Nanjing University; Nanjing University of Science and Technology; University of Trento; Illinois Institute of Technology; Guangdong University of Petrochemical Technology
Full-duplex strategy for video object segmentation	Wuhan University; ETH Zurich; Chengdu University; Sichuan University; Peng Cheng Laboratory; Beijing Institute of Technology; Inception Institute of Artificial Intelligence
Multi-Granular Semantic Mining for Weakly Supervised Semantic Segmentation	Beijing Institute of Technology; Beijing Institute of Technology; ETH Zurich
Cross-Modality High-Frequency Transformer for MR Image Super-Resolution	Xidian University; Northwestern Polytechnical University; Xidian University; ETH Zurich; Zhejiang Lab; Northwestern Polytechnical University
A Glass-Ultra-Thin PDMS Film-Glass Microfluidic Device for Digital PCR Application Based on Flexible Mold Peel-Off Process	Xiamen University; Institute for Biomedical Engineering; Bioengineering (Switzerland); ETH Zurich; Xiamen University; Xiamen University; Peking University; Xiamen University; Peking University; Beijing Institute of Technology; Xiamen University
Scale-reconfigurable miniature ferrofluidic robots for negotiating sharply variable spaces	Soochow University; Soochow University; Max Planck Institute for Intelligent Systems; Soochow University; Harbin Institute of Technology; Harbin Institute of Technology; Harbin Institute of Technology; Soochow University; Soochow University; Max Planck Institute for Intelligent

	Systems; Institute for Biomedical Engineering; ETH Zurich; Koç University
Dynamic effect of water penetration on steel corrosion in carbonated mortar: A neutron imaging, electrochemical, and modeling study	ETH Zurich; Paul Scherrer Institute; Harbin Institute of Technology; Ministry of Industry and Information Technology; ETH Zurich; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich
A transferable energy management strategy for hybrid electric vehicles via dueling deep deterministic policy gradient	Beijing Institute of Technology; Beijing Institute of Technology; Delft University of Technology; Beijing Institute of Technology; ETH Zurich; Beijing Institute of Technology; Beijing Institute of Technology; Beijing Institute of Technology
Magnetically actuated gearbox for the wireless control of millimeter-scale robots	Max Planck Institute for Intelligent Systems; Harbin Institute of Technology; Max Planck Institute for Intelligent Systems; Institute for Biomedical Engineering; ETH Zurich; Harbin Institute of Technology; Max Planck Institute for Intelligent Systems; Max Planck Institute for Intelligent Systems; Harbin Institute of Technology; Max Planck Institute for Intelligent Systems; Max Planck Institute for Intelligent Systems; Institute for Biomedical Engineering; ETH Zurich; Koç University
Impacts of Simulated Contrail Processing and Organic Content Change on the Ice Nucleation of Soot Particles	Beihang University; ETH Zurich; ETH Zurich
Roadmap on soft robotics: multifunctionality, adaptability and growth without borders	Center for Micro-BioRobotics; Piaggio Aerospace (Italy); Italian Institute of Technology; University of Florence; Tokyo Institute of Technology; Sant'Anna School of Advanced Studies; University of Freiburg; Queen Mary University of London; ETH Zurich; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; Imperial College London; Vrije Universiteit Brussel; Vrije Universiteit Brussel; RIKEN Advanced Science Institute; RIKEN; Yamagata University; RIKEN; Sant'Anna School of Advanced Studies; National University of Singapore; Beihang University; Beihang University; Beihang University; Yale University; Yale University; Yale University; Max Planck Institute for Intelligent Systems; Technical University of Munich; University of Potsdam
p-Meta	ETH Zurich; Singapore Management University; Beihang University; ETH Zurich

Transfer Learning based Search Space Design for Hyperparameter Tuning	Tencent (China); Peking University; Peking University; Peking University; Beijing Institute of Technology; Tencent (China); Peking University; ETH Zurich; Peking University
Smooth Poly-hyper Surface Structures: Freeform Shells Based on Combinations of Hyperbolic Paraboloids	Harbin Institute of Technology; Aalto University; ETH Zurich
A prescriptive Dirichlet power allocation policy with deep reinforcement learning	ETH Zurich; Harbin Institute of Technology; Ames Research Center; École Polytechnique Fédérale de Lausanne
MoSBOTs: Magnetically Driven Biotemplated MoS ₂ -Based Microrobots for Biomedical Applications	ETH Zurich; University of Alcalá; ETH Zurich; ETH Zurich; ETH Zurich; ETH Zurich; ETH Zurich; ETH Zurich; Beihang University; Beihang University; University Hospital of Zurich; University of Alcalá; University of Alcalá; Institució Catalana de Recerca i Estudis Avançats; ETH Zurich
Detail-Preserving Transformer for Light Field Image Super-resolution	Beijing Institute of Technology; ETH Zurich; Beijing Institute of Technology; Beijing Institute of Technology
Domain-Lifted Sampling for Universal Two-Variable Logic and Extensions	Beihang University; KU Leuven; CRRC (China); ETH Zurich; Czech Technical University in Prague
Measuring Airborne Antibiotic Resistance Genes in Swiss Cities via a DNA-Enabled Electrochemical Chip-Based Sensor	Harbin Institute of Technology; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; Harbin Institute of Technology; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology
Locality-Aware Inter-and Intra-Video Reconstruction for Self-Supervised Correspondence Learning	Beijing Institute of Technology; Baidu (China); ETH Zurich; University of Technology Sydney; Beijing University of Posts and Telecommunications; Beijing Institute of Technology; Zhejiang University
Full-Range Virtual Try-On with Recurrent Tri-Level Transform	ETH Zurich; Harbin Institute of Technology; Nanyang Technological University
Deep Hierarchical Semantic Segmentation	Beijing Institute of Technology; Baidu (China); ETH Zurich; University of Technology Sydney; Beijing Institute of Technology; Zhejiang University

Counterfactual Cycle-Consistent Learning for Instruction Following and Generation in Vision-Language Navigation	Beijing Institute of Technology; ETH Zurich; Beijing Institute of Technology; University of Macau; ETH Zurich; University of Technology Sydney
Equilibrium as the common ground: Introducing embodied perception into structural design with graphic statics	ETH Zurich; Aalto University; ETH Zurich; Harbin Institute of Technology
Salient Object Detection in the Deep Learning Era: An In-Depth Survey	ETH Zurich; Chinese University of Hong Kong; Inception Institute of Artificial Intelligence; Inception Institute of Artificial Intelligence; Beijing Institute of Technology; Temple University; University of Kentucky
Visualizations of the carbon interphase influence on the ablated fracture morphology of carbon/carbon composites at pore scale	Northwestern Polytechnical University; Northwestern Polytechnical University; ETH Zurich; China Academy of Launch Vehicle Technology; Northwestern Polytechnical University
Regional Semantic Contrast and Aggregation for Weakly Supervised Semantic Segmentation	ETH Zurich; Beijing Institute of Technology; Inception Institute of Artificial Intelligence; Beijing Institute of Technology
Temperature Induced Band Convergence, Intervalley Scattering, and Thermoelectric Transport in p-Type PbTe	ETH Zurich; Nanjing University of Science and Technology; University College Cork
Electrochemical 3D printing of silver and nickel microstructures with FluidFM	ETH Zurich; Nanjing University of Aeronautics and Astronautics; ETH Zurich; ETH Zurich; Carl von Ossietzky University of Oldenburg; ETH Zurich
In flow-based technologies: A new paradigm for the synthesis and processing of covalent-organic frameworks	University of Barcelona; University of Barcelona; University of Barcelona; University of Barcelona; University of Barcelona; Xiamen University; Xiamen University; Beijing Institute of Technology; ETH Zurich; University of Barcelona; Institució Catalana de Recerca i Estudis Avançats
Mitigation effects of alternative aviation fuels on non-volatile particulate matter emissions from aircraft gas turbine engines: A review	Beihang University; Beihang University; Beihang University; Beijing Academy of Science and Technology; Beijing Academy of Science and Technology; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; Utility Development (United States); ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology
Laboratory studies of ice nucleation onto bare and internally mixed soot-sulfuric acid particles	Beihang University; ETH Zurich; Beihang University; ETH Zurich; ETH Zurich

Enhanced soot particle ice nucleation ability induced by aggregate compaction and densification	Beihang University; ETH Zurich; ETH Zurich; Beihang University; ETH Zurich
PVT v2: Improved baselines with Pyramid Vision Transformer	Nanjing University of Science and Technology; University of Hong Kong; Nanjing University of Science and Technology; ETH Zurich; Nanjing University of Science and Technology; Group Sense (China); Nanjing University of Science and Technology; University of Hong Kong; Inception Institute of Artificial Intelligence
Insights Into the Low Rate of In-Pump Thrombosis With the HeartMate 3: Does the Artificial Pulse Improve Washout?	Harbin Institute of Technology; University of Zurich; Harbin Institute of Technology; University of Zurich; Politecnico di Milano; Politecnico di Milano; ETH Zurich; University of Zurich; Vita-Salute San Raffaele University; Istituti di Ricovero e Cura a Carattere Scientifico; University of Zurich
Conversion of Chirality to Twisting via 1D-to-2D Growth of Graphene Spirals	ShanghaiTech University; Institute for Basic Science; Beijing Institute of Technology; Chinese Academy of Sciences; ShanghaiTech University; ShanghaiTech University; ShanghaiTech University; ShanghaiTech University; Czech Academy of Sciences, Institute of Physics; Chinese Academy of Sciences; Renmin University of China; Brno University of Technology; Brno University of Technology; ShanghaiTech University; ShanghaiTech University; Tsinghua University; Chinese Academy of Sciences; Peking University; Czech Academy of Sciences, Institute of Physics; Chinese Academy of Sciences; Dalian Institute of Chemical Physics; Shanghai Institute of Microsystem and Information Technology; Renmin University of China; Ulsan National Institute of Science and Technology; Institute for Basic Science; ETH Zurich
Amyloid?Templated Palladium Nanoparticles for Water Purification by Electroreduction	Harbin Institute of Technology; ETH Zurich; ETH Zurich; Harbin Institute of Technology; ETH Zurich; ETH Zurich; ETH Zurich; Harbin Institute of Technology; ETH Zurich
Amyloid?Templated Palladium Nanoparticles for Water Purification by Electroreduction	Harbin Institute of Technology; ETH Zurich; ETH Zurich; Harbin Institute of Technology; ETH Zurich; ETH Zurich; ETH Zurich; Harbin Institute of Technology; ETH Zurich
Supervised Multi-Scale Attention-Guided Ship Detection in Optical Remote Sensing Images	Harbin Institute of Technology; Harbin Institute of Technology; Harbin Institute of Technology; ETH Zurich; Harbin Institute of Technology; University of Trento
Ultra-High PSR Output-Capacitor-Free Adaptively-Biased 2-Power-Transistor LDO with 200-mV Dropout	Southern University of Science and Technology; Hong Kong University of Science and Technology; University of Hong Kong; University of Hong Kong; Hong Kong University of

	Science and Technology; ETH Zurich; Beihang University; Southern University of Science and Technology
Effects of relative humidity on heterogeneous reaction of SO ₂ with CaCO ₃ particles and formation of CaSO ₄ ·2H ₂ O crystal as secondary aerosol	ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; ETH Zurich; ETH Zurich; Harbin Institute of Technology; State Key Joint Laboratory of Environment Simulation and Pollution Control; Peking University; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich
GNSS Pseudo Interference Reflectometry for Ground-Based Soil Moisture Remote Sensing: Theory and Simulations	Beihang University; Beihang University; ETH Zurich; Beihang University; Beihang University
HEAD: HEtero-Assists Distillation for Heterogeneous Object Detectors	Beihang University; Group Sense (China); Beihang University; ETH Zurich; Shandong University; Group Sense (China); University of Science and Technology of China; Group Sense (China); Beihang University
GNSS Pseudo Interference Reflectometry for Ground-Based Soil Moisture Remote Sensing: Theory and Simulations	Beihang University; Beihang University; ETH Zurich; Beihang University; Beihang University
HEAD: HEtero-Assists Distillation for Heterogeneous Object Detectors	Beihang University; Group Sense (China); Beihang University; ETH Zurich; Shandong University; Group Sense (China); University of Science and Technology of China; Group Sense (China); Beihang University
Group-Wise Learning for Weakly Supervised Semantic Segmentation	ETH Zurich; Beijing Institute of Technology; Beijing Institute of Technology; Harbin Institute of Technology; Beijing Institute of Technology; Inception Institute of Artificial Intelligence
Contextual Transformation Network for Lightweight Remote-Sensing Image Super-Resolution	Beijing Institute of Technology; ETH Zurich; Beijing Institute of Technology; Beijing Institute of Technology
Alloy design and adaptation for additive manufacture	University of Nottingham; University of North Texas; Northwestern Polytechnical University; Sir Robert McAlpine (United Kingdom); Sir Robert McAlpine (United Kingdom); Pennsylvania State University; ETH Zurich
The dependence of soot particle ice nucleation ability on its volatile content	Beihang University; ETH Zurich; Bruker (Switzerland); Beihang University; ETH Zurich
Large-eddy simulation of wind-driven flame in the atmospheric boundary layer	University of Sydney; University of Bologna; Western Sydney University; UNSW Sydney; ETH Zurich; Harbin Institute of Technology; University of Sydney
Biotemplating of Metal–Organic Framework Nanocrystals for	ETH Zurich; University of Valencia Science Park; University of Valencia; Central European Institute of Technology; Brno

Applications in Small-Scale Robotics	University of Technology; ETH Zurich; ETH Zurich; ETH Zurich; ETH Zurich; University of Valencia Science Park; University of Valencia; University of Valencia Science Park; University of Valencia; Beihang University; Beihang University; ETH Zurich; Central European Institute of Technology; Brno University of Technology; Mendel University in Brno; China Medical University Hospital; China Medical University; Institute for Biomedical Engineering; Bioengineering (Switzerland); ETH Zurich; ETH Zurich; ETH Zurich; Institució Catalana de Recerca i Estudis Avançats
Copper alginate surface for perpetual Self-Polishing and Anti-Biofouling compound release	Harbin Institute of Technology; Tomsk Polytechnic University; Tomsk Polytechnic University; Tomsk Polytechnic University; Harbin Institute of Technology; Tomsk Polytechnic University; Board of the Swiss Federal Institutes of Technology; ETH Zurich
Enhanced soot particle ice nucleation ability induced by aggregate compaction and densification	Beihang University; ETH Zurich; ETH Zurich; Beihang University; ETH Zurich
Pruning Meta-Trained Networks for On-Device Adaptation	Beihang University; ETH Zurich; Singapore Management University; Beihang University; ETH Zurich
Deep Learning for Visual Data Compression	Beijing Institute of Technology; ETH Zurich; University of Illinois Urbana-Champaign; KLA (United States); ETH Zurich
Guest Editorial: Special Issue on Deep Learning for Video Analysis and Compression	University of Sydney; Johns Hopkins University; ETH Zurich; KU Leuven; Beijing Institute of Technology
Shape-programmable liquid crystal elastomer structures with arbitrary three-dimensional director fields and geometries	Beijing Institute of Technology; Max Planck Institute for Intelligent Systems; Max Planck Institute for Intelligent Systems; City University of Hong Kong; Max Planck Institute for Intelligent Systems; Max Planck Institute for Intelligent Systems; Max Planck Institute for Intelligent Systems; Institute for Biomedical Engineering; ETH Zurich; Koç University
Propulsion Mechanisms of Light-Driven Plasmonic Colloidal Micromotors	ETH Zurich; Harbin Institute of Technology; Tomsk Polytechnic University; Tomsk Polytechnic University; Harbin Institute of Technology; Tomsk Polytechnic University; Harbin Institute of Technology; Tomsk Polytechnic University; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich; Harbin Institute of Technology; Fudan

	University; Swiss Federal Laboratories for Materials Science and Technology; ETH Zurich
The vital application of rare earth for future high-performance electromagnetic wave absorption materials: A review	Shandong University; Shandong University; Shandong University; ETH Zurich; Shandong University; Nanjing University of Science and Technology; Shandong University
Content-Aware Adaptive Device-Cloud Collaborative Inference for Object Detection	Harbin Institute of Technology; Harbin Institute of Technology; University of Chinese Academy of Sciences; ETH Zurich; Harbin Institute of Technology; Harbin Institute of Technology
Deep domain adversarial neural network for the deconvolution of cell type mixtures in tissue proteome profiling	Tencent (China); Harbin Institute of Technology; Tencent (China); Tencent (China); Tencent (China); Australian Regenerative Medicine Institute; Monash University; Tencent (China); University of Melbourne; ETH Zurich; Harbin Institute of Technology; Tencent (China)
Reconfigurable nonreciprocal excitation of propagating exchange spin waves in perpendicularly magnetized yttrium iron garnet thin films	Beihang University; Beijing Academy of Quantum Information Sciences; ETH Zurich; Beihang University; National Engineering Research Center of Electromagnetic Radiation Control Materials; University of Electronic Science and Technology of China; Institute of Physics; University of Chinese Academy of Sciences; ETH Zurich; Institute of Physics; University of Chinese Academy of Sciences; Beihang University; Beihang University; Beijing Academy of Quantum Information Sciences; Southern University of Science and Technology; Institute of Physics; University of Chinese Academy of Sciences; Institute of Physics; University of Chinese Academy of Sciences; Institute of Physics; University of Chinese Academy of Sciences; National Engineering Research Center of Electromagnetic Radiation Control Materials; University of Electronic Science and Technology of China; Southern University of Science and Technology; École Polytechnique Fédérale de Lausanne; Beihang University; Beijing Academy of Quantum Information Sciences
A massive MPI parallel framework of smoothed particle hydrodynamics with optimized memory management for extreme mechanics problems	Peking University; Beijing Institute of Technology; ETH Zurich; Peking University
Superhydrophobic MOF based materials and their applications for oil-water separation	Harbin Institute of Technology; Harbin Institute of Technology; ETH Zurich; Harbin Institute of Technology; Najran University; Harbin Institute of Technology; Harbin Institute of Technology; Harbin Institute of Technology; Deakin University

GCoNet+: A Stronger Group Collaborative Co-Salient Object Detector	Nanjing University of Aeronautics and Astronautics; Mohamed bin Zayed University of Artificial Intelligence; Aalto University; Institute of High Performance Computing; Agency for Science, Technology and Research; ETH Zurich; Hong Kong University of Science and Technology; University of Hong Kong; Nanjing University of Aeronautics and Astronautics; Hong Kong University of Science and Technology; University of Hong Kong; Hong Kong University of Science and Technology; University of Hong Kong; ETH Zurich; KU Leuven
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