Press release

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AIT RESEARCHER FLORIAN HONZ WINS THE TECNET/ACCENT INNOVATION AWARD 2023

The annual competition promotes entrepreneurship. Young researchers from the AIT Austrian Institute of Technology present their posters and show how innovations can benefit the general public.

13 diploma students, doctoral students and junior scientists from six centres of the AIT Austrian Institute of Technology took part in this year's tecnet/accent Innovation Award 2023 - the winners were honoured today. The award was launched in 2010 and has since been supported by the Lower Austrian tech incubator accent and the venture capital fund tecnet equity. Without the know-how of these partners, the award would not be possible. This year, for the first time, the award is appearing under a new name, the "tecnet/accent Innovation Award".

Florian Honz from the AIT Center for Digital Safety & Security won first place for his contribution in the field of quantum cryptography and was awarded prize money of 1,500 euros. Increasing digitalisation has led to a rapid rise in security requirements for communication systems. Florian Honz's research demonstrates that a purely silicon-based light source for quantum key distribution can be realised by exploiting a quasi-direct semiconductor band gap. This not only enables a strong miniaturisation, but also a significant reduction in costs - and thus ultimately allows a practical roll-out of quantum cryprography in cost-sensitive ICT segments, such as data centres.

"Research and development results are a key to successful value creation. At tecnet, we help AIT scientists to develop a suitable exploitation strategy and appropriate financing. The knowledge about the economic implementation of research should be anchored in young talents as early as possible," explains **Doris Agneter**, Managing Director of the **venture capital fund tecnet equity**.

"And the best scientific work is of no use if it is not presented in such a way that the business world also recognises its potential," adds **Michael Moll**, Managing Director of **accent Inkubator GmbH**. "As a Tough Tech Incubator, we at accent support projects in successfully transforming their pioneering technologies into successful start-up business models."

The green dream of the new generation of anodes for lithium-ion batteries

Second place went to Jana Kupka from the AIT Center for Low-Emission Transport. Her research focuses on the production of composite anode materials based on silicon, tin disulphide and graphite for generation 3b lithium-ion batteries. The aim is to increase the capacity, the number of charging cycles and the service life of the anode. Kupka pursues the concept of reducing the volume changes of the silicon and tin particles in the composite anode by means of a stable Li2S

matrix phase, which is created during the first charging. This prevents typical degradation phenomena in the anode, such as crack propagation, particle breakage and loss of electrical contact. Another focus of their work is the water-based production of the slurries for electrode coating to avoid toxic organic solvents in battery manufacturing.

AI-assisted approaches to personlisation to improve XR training

Third place went to Daniele Pretolesi from the AIT Center of Technology Experience, whose poster presents AI-based approaches to make XR training adaptive based on biosignals and behavioural data, and to improve the effectiveness of training through personalisation. Extended Reality (XR) training systems are becoming increasingly common, especially among emergency responders of all types, such as law enforcement, firefighters, medical first responders and Chemical, Biological, Radiological, Nuclear, Explosives (CBRNE) specialists. By using data collected from biosignals and behaviour during training, the AI can make real-time changes to provide a personalised and dynamic experience for the trainee, immensely improving the effectiveness of the training.

"The AIT Austrian Institute of Technology promotes and challenges its talents. This also means making our AIT researchers aware of the economic potential of their projects and providing them with targeted support along the way," emphasises AIT Managing Director Wolfgang Knoll.

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