ETH zürich Kanton Zug

Press release

Research to improve cybersecurity

Canton of Zug invests in two ETH professorships and a new collaboration

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Two new ETH professorships will focus on using artificial intelligence to identify security vulnerabilities while also protecting AI systems from attacks. The Canton of Zug is providing up to CHF 55 million over 25 years. It will also enter into a five-year partnership with the Zurich Information Security and Privacy Center (ZISC) at ETH Zurich.

Whether in hospitals, power supply or transport, more and more basic operations depend on digital systems. Attacks on or manipulations of these systems can have far-reaching consequences. The growing use of artificial intelligence is creating additional security risks. At the same time, AI offers new ways to protect digital systems against attacks. Through the agreements signed at ETH Zurich on 11 November, the partners are laying the foundations for joint research into these issues.

Finding security flaws before they are exploited

Often, a single security vulnerability is enough to compromise a digital system. Detecting such flaws across millions of lines of code is complex and time-consuming. The new AI for Cybersecurity professorship at the Department of Computer Science is therefore designed to develop AI-based methods that automatically analyse program code and detect potential security issues.

Meanwhile, the second professorship, Secure Machine Learning Systems, based in the Department of Information Technology and Electrical Engineering, will focus on how AI systems can be protected against attacks. The researchers will seek not only to safeguard the AI model but also the system it runs on. For example, in a smart surveillance camera, the camera software, the underlying hardware, and the AI model must all be protected from attacks.

“We want to identify security flaws before attackers can exploit them. Artificial intelligence can significantly speed up security testing. At the same time, we have to prevent AI systems from becoming gateways for attacks. Thanks to the Canton of Zug’s long-term support, we can specifically strengthen these two research fields and work with the National Test Institute for Cybersecurity (NTC) to develop new solutions for real-world application,” says ETH President Joël Mesot.

Research meets practical security testing
Both professorships will be based at ETH Zurich. The researchers will regularly carry out some of their work in the Canton of Zug, where they will collaborate with the NTC. The independent, non-profit organisation tests digital products and systems, such as those used in hospitals or in electric-vehicle charging infrastructure.

In future, ETH researchers will develop new testing methods and trial them on real-life digital products with the NTC. The idea is for the insights gained to feed into research.

“Cybersecurity is evolving rapidly. This is why we’re not investing in a single project but instead laying the foundations for ongoing research and its practical application over 25 years. This should benefit businesses and public institutions in the Canton of Zug, and far beyond,” explains Heinz Tännler, Finance Director of the Canton of Zug.

ETH expertise for cantonal competence centre
In addition to the two new professorships, the Canton of Zug and ETH Zurich have agreed on further cooperation: from April 2027, the Canton will invest up to CHF 3.65 million in a five-year partnership with ETH’s Zurich Information Security and Privacy Center (ZISC). The ZISC brings together research groups working in areas including cryptography, data protection and network security.

This partnership should particularly benefit the Cantonal Competence Centre for Cybersecurity, which the Canton of Zug is currently establishing. ZISC researchers will advise experts at the centre, which may lead to joint research projects. Conversely, security issues from real-world practice can feed into research.

“Smaller businesses in particular often don’t have their own cybersecurity experts. Our competence centre is designed to help them identify risks early and better protect themselves. To this end, we also want to draw on the knowledge of ETH researchers,” says Laura Dittli, Security Director of the Canton of Zug.

Both partnerships are part of the Zug Cybersecurity Initiative, through which the Canton aims to better protect the public, businesses and authorities against cyberattacks (see infobox below).

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About the Canton of Zug's Cybersecurity Initiative

Through the Zug Cybersecurity Initiative (CSI), the Canton of Zug aims to better protect the public and businesses – particularly small and medium-sized enterprises – from cyberattacks and to bolster Zug as a hub for cybersecurity. This is in response to the growing cyber threats targeting state institutions, businesses, universities and the public. The centrepiece of the CSI is the Cantonal Competence Centre for Cybersecurity (KKC). In addition to raising public awareness and supporting SMEs, the Cybersecurity Initiative (CSI) includes strategic partnerships with ETH Zurich and Lucerne University of Applied Sciences and Arts, as well as long-term research collaboration between ETH Zurich and the National Test Institute for Cybersecurity. Over the next few years, the Government Council of the Canton of Zurich plans to spend around CHF 9 million per year to implement the initiative. The Zug Cybersecurity Initiative is to be financed by the additional revenues from the OECD minimum tax.