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CityU Architecture Lab for Arithmetic and Security (CALAS) Seminar Series

Security challenges and opportunities in emerging device technologies

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Abstract:

While traditional chips in bulk silicon technology are widely used for reliable and highly efficient systems, there are applications that call for devices in other technologies. On the one hand, novel device technologies need to be re-evaluated with respect to potential threats and attacks, and how these can be faced with existing and novel security solutions and methods. On the other hand, emerging device technologies bring opportunities for building the secure systems of the future. This talk will give an overview of the minimal hardware resources that are needed to build secure systems and discusses the state-of-the-art in the design of these hardware resources in emerging device technologies.

Biography:

Nele Mentens is a professor at Leiden University in the Netherlands and KU Leuven in Belgium. Her research interests are in the field of configurable computing and hardware security. She was/is the PI in around 25 finished and ongoing research projects with national and international funding. She serves as a program committee member of renowned international conferences on security and hardware design. She was the general co-chair of FPL'17 and she was/is the program chair of FPL'20, CARDIS'20, RAW'21, VLSID'22, DDECS'23, ASAP'23 and FPL'23. She is (co-)author in around 150 publications in international journals, conferences and books. She received best paper awards and nominations at CHES'19, AsianHOST'17 and DATE'16. Nele serves as an associate editor for IEEE TIFS, IEEE CAS Magazine, IEEE S&P, IEEE TCAD, ACM TRETS and ACM TODAES. She also serves as an expert for the European Commission.

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