COLLEGE OF
Engineering, Computer Science, and Technology

Seminar in Interdisciplinary STEM Research

April 9th – Thursday, 3:05-4:20 PM PST

Location: E&T C256

HOSTED BY CREST-CATSUS AND SIKAND SITI CENTERS

David Häusermann

Entrepreneurial Fellow at the Swiss Federal Laboratories for Materials Science and Technology, Co-Founder & CTO at FireDrone spin-off

David Häusermann is an Entrepreneurial Fellow at the Swiss Federal Laboratories for Materials Science and Technology (Empa). With a background in mechanical engineering, systems engineering and product development, he specializes in developing robots for extreme temperature environments. As a research engineer at the Laboratory of Sustainability Robotics (LSR) at Empa and EPFL, he has contributed to interdisciplinary projects at the intersection of material science and robotics. His work focuses on integrating advanced materials into robotic design to enable new capabilities in challenging environments. Currently, he is transitioning from academia to entrepreneurship through *FireDrone*, an Empa spin-off supported by the Empa Entrepreneur Fellowship (EEF).

FireDrone – Leveraging material science for novel robotic applications

This talk presents the research activities at the Laboratory of Sustainability Robotics and highlights how its integration within a material science environment at Empa enables novel robotic applications. In particular, it focuses on the development of the *FireDrone*, a thermally resilient aerial robot co-designed through the integration of advanced materials and robotic systems. By leveraging polyimide aerogel insulation and bioinspired cooling strategies, the system can operate in extreme temperature environments while protecting critical onboard components. The talk further discusses how combining material science with robotic design enables new approaches to building adaptive systems for hazardous environments. Case studies and experimental results will illustrate how such systems can extend the capabilities of aerial robotics for applications such as firefighting, inspection, and disaster response, while reducing risks to human operators.

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