



**Guest Lecture**

# **Taylor A. Hardin**

**Information Provenance  
for Health Data Systems**

Tuesday, March 3, 2020, 2:00pm - 3:30pm

ETH Zürich, Main Building, Rämistrasse 101, Room HG F 26.1

## About Taylor A. Hardin

Taylor is a fourth year Computer Science PhD student at Dartmouth College who works with David Kotz. He began his PhD on the Amulet Project - an electronic bracelet and software framework that enables developers to create safe, secure, and efficient mHealth applications - where he researched memory management techniques for securing applications on ultra-low-power multi-application wearables. Currently, he is focused on achieving privacy-preserving data provenance in Health Data Systems through the use of Blockchain and Trusted Execution Environment technologies.

## About the Lecture

In the last decade Electronic Health Record (EHR) systems have been widely deployed, with almost 96% of all reported hospitals in the US now using certified EHR technology. By digitizing health information, EHRs provide healthcare providers and patients with easier access to health records, including doctor's notes, patient charts, and prescriptions. Meanwhile, many healthcare providers are recommending patients use mobile health (mHealth) devices because they allow providers to monitor individuals' health outside of a clinical setting. Combining the data stored in EHRs with those produced by mHealth devices may give healthcare providers a more holistic view of a patient's health, allow for an increased level of care for patients, and reduce operating costs. There remains a disconnect, however, between EHR and mHealth technologies as they are managed by different organizations and implemented using different technologies, which makes creating a trusted and secure data sharing ecosystem difficult.

To address these issues, we present a concept for a secure, integrated health data system that leverages Blockchain and Trusted Execution Environment (TEE) technologies. By using a blockchain to record and enforce data access policies we remove the need to trust a single entity with gate-keeping the health data. Instead, participants form a consortium and collectively partake in verifying and enforcing access policies for data stored in private data silos. We require that data access and computation take place inside of TEEs, which preserves data confidentiality and provides us with a verifiable attestation that can be stored on the blockchain for all parties to see.

We invite you to join this guest lecture. Registration is not required.

### **Prof. Dr. Tobias Kowatsch**

Assistant Professor for Digital Health, University of St.Gallen (HSG)  
Director, Center for Digital Health Interventions (CDHI), ETH Zürich & HSG

### **Prof. Dr. Elgar Fleisch**

Professor of Information Management, ETH Zürich  
Professor of Technology Management, HSG

### **Prof. David Kotz, PhD**

International Paper Professor, Dartmouth College  
Visiting Professor CDHI, ETH Zürich

### **Prof. Dr. Florian von Wangenheim**

Professor of Technology Marketing, ETH Zürich