# A Proof System of the CaIT Calculus

**Ningning CHEN, Huibiao ZHU**

Frontiers of Computer Science, DOI: 10.1007/s11704-022-2258-3

# Problems & Ideas

- **Problems:**
  - Most of the existing research mainly focuses on the practical applications of IoT, and there is a lack of research on modeling and reasoning about IoT systems from the perspective of formal methods.
  - The Calculus of the Internet of Things (CaIT) has been proposed to specify and analyze IoT systems before the actual implementation.
  - There needs to be a proof system to verify the correctness of IoT systems described by CaIT.
- **Ideas:** This paper presents a proof system for CaIT, in which specifications and verifications are based on the extended Hoare Logic with time.

# Main Contributions

- Contributions:
  - We present a proof system for CaIT to prove the correctness of IoT systems, where specifications are based on Hoare triples；
  - We explore the cooperation between isolated proofs；
  - A simple “smart home” is given to illustrate how our proof system works.