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Towards a Trusted Database System for Supporting Verifiability and Digital Trust

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Abstract

The advancement of technologies has caused many organizations to re-strategize and adopt digital transformation. Along with it, transactions and interactions between organizations have been digitized. However, digitalization is creating the dependency of society on increasingly complex, interconnected systems and networks, which increases our exposure to various threats such as loss of data, loss of control over the software systems and networks, mistrust due to ill-intended contents and actions, misuse of technology and so on. To bootstrap trust and support secure data sharing, cross-institution transactions and business in the digital world, various technologies are needed to empower cross-institutional collaboration with increasing trust through secure communication, transfer and exchange of digital documents and assets, verifiability, and auditability. Trusted database technology is foundational to supporting digital trust. It is required to not only ensure privacy, integrity of data, but also of the computation on the data. The design space for trusted database systems is vast, and there is no one-size-fits-all solution. I shall discuss design and implementation issues and requirements of a flexible trusted database system and our works in this area.

Biography

Beng Chin is Lee Kong Chian Centennial Professor and NGS faculty member at the National University of Singapore (NUS), an adjunct Chair Professor at Zhejiang University, China, and the director of NUS AI Innovation and Commercialization Centre at Suzhou, China. He obtained his BSc (1st Class Honors) and PhD from Monash University, Australia, in 1985 and 1989 respectively. He is a fellow of the ACM, IEEE, and Singapore National Academy of Science (SNAS). Beng Chin serves as a non-executive and independent director of ComfortDelgro, a transportation company, and AIDigi Holdings, a Fintech company.

Beng Chin's research interests include database systems, distributed and blockchain systems, and large scale analytics, in the aspects of system architectures, performance issues, security, accuracy and correctness. He works closely with the industry (eg. NUHS, Jurong Health, Tan Tok Seng Hospital and Singapore General Hospital on healthcare analytics and prediabetes prevention), and exploits IT for efficiency in various application domains, including healthcare, finance and smart city.

Beng Chin was the recipient of ACM SIGMOD 2009 Contributions award, a co-winner of the 2011 Singapore President's Science Award, the recipient of 2012 IEEE Computer Society Kanai award, 2013 NUS Outstanding Researcher Award, 2014 IEEE TCDE CSEE Impact Award, 2016 China Computer Federation (CCF) Overseas Outstanding Contributions Award, and 2020 ACM SIGMOD EF Codd Innovation Award. He was a recipient of VLDB'14 and VLDB'19 Best Paper awards, and SIGMOD 2020 Research Highlight award.

Beng Chin has served as a PC member for international conferences such as ACM SIGMOD, VLDB, IEEE ICDE, WWW, and SIGKDD, and as Vice PC Chair for ICDE'00,04,06, PC co-Chair for SSD'93 and DASFAA'05, PC Chair for ACM SIGMOD'07, Core DB PC chair for VLDB'08, and PC co-Chair for IEEE ICDE'12, IEEE Big Data'15, BOSS'18, IEEE ICDE'18, Industry track of VLDB'19, BCDL'19 and ACM SoCC'20. He has served as the President of VLDB Endowment (2014-2017), and editor-in-chief of IEEE Transactions on Knowledge Engineering (2008-2012), Elsevier Journal of Big Data Research (2014-2016), and ACM/IMS Transactions on Data Science (2018-2021).

All are welcome.

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