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UNIVERSITÉ DE FRIBOURG
UNIVERSITÄT FREIBURG

DEPARTEMENT D'INFORMATIQUE
DEPARTEMENT FÜR INFORMATIK

INFORMATICS COLLOQUIUM

Speaker:

Assistant Professor Tianzheng Wang, Simon Fraser University (SFU), Vancouver

How to get online transactional schema evolution (almost) for free in snapshot databases

Abstract:
Modern database applications often change/evolve their schema, which is a necessary yet often an operation described as "dicey" or "dangerous" due to insufficient support in existing systems. More often than not, application developers find themselves using ad hoc schema evolution features that are provided by DBMS vendors as "patches" to an existing system that is not designed with transactional schema evolution in mind. This leads to various issues such as missing features, poor performance and corner cases that require manual intervention by the application developers. In this talk, we revisit the problem and solve the problem with a new data-definition-as-modification (DDaM) approach that makes online transactional schema evolution a first-class citizen in the database engine level. DDaM fits nicely with MVCC and allows us to seamlessly model schema evolution as table modification operations without the aforementioned drawbacks. We will then describe the Tesseract system, a realization of DDaM with optimizations on a modern multi-versioned main memory OLTP engine, and discuss future directions in this line of work.

Bio:
Tianzheng Wang is an assistant professor in the School of Computing Science at Simon Fraser University (SFU) in Metro Vancouver, Canada. He works on the boundary between software and modern hardware, including parallel/multicore processors and next-generation memory, storage and networking devices. His current research focuses on database systems and related areas that impact the design of data-intensive systems, such as operating systems, runtime libraries and synchronization primitives. Tianzheng Wang received his Ph.D. and M.Sc. degrees in Computer Science from the University of Toronto in 2017 and 2014, respectively. He received his B.Sc. in Computing degree (First Class Honours) from Hong Kong Polytechnic University in 2012. Prior to joining SFU, he spent one year (2017-2018) at Huawei Canada Research Centre (Toronto) as a research engineer. In addition to adoptions by major cloud vendors and startups, his work has been recognized by a 2021 ACM SIGMOD Research Highlight Award, a 2019 IEEE TCSC Award for Excellence in Scalable Computing (Early Career Researchers) and nominations for best/memorable paper awards.

Date and time: *Monday, October 17th, 2022, 10.00 am*
Location: *Pérolles 21, room G230, Bd de Pérolles 90, Fribourg*
Contact person: *Prof. Philippe Cudré-Mauroux*

The colloquium is free and open to the public.