Jose Manuel Faleiro

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RESEARCH INTERESTS
Parallel Programming Models, Database Systems, Operating Systems, Distributed Systems

EDUCATION

Yale University   Aug 2012 - present
PhD Computer Science
Advised by Daniel Abadi

Birla Institute of Technology and Science, Pilani, INDIA   Aug 2007-Jun 2011
B.E.(Honors) Computer Science
CGPA: **9.68/10**

PUBLICATIONS

Lazy Evaluation of Transactions in Database Systems
Jose M. Faleiro, Alexander Thomson, Daniel J. Abadi
SIGMOD 2014

Generalized Lattice Agreement
Jose M. Faleiro, Sriram Rajamani, Kaushik Rajan, Ganesan Ramalingam, Kapil Vaswani
PODC 2012

CScale − A Programming Model for Scalable and Reliable Distributed Applications
Jose Faleiro, Sriram Rajamani, Kaushik Rajan, Ganesan Ramalingam, Kapil Vaswani
Monterey Workshop 2012

RESEARCH EXPERIENCE

Lazy Transactions   Jan 2013 - present
With Daniel Abadi and Alexander Thomson, at Yale University
Inspired by lazy evaluation in programming languages, investigated the performance tradeoffs of
deferred transaction execution in a database system. Designed and implemented a prototype system
to evaluate the feasibility of lazy transaction processing. Our technique improves data-cache local-
ity, is able to elegantly deal with transient load spikes, and improves concurrency in high-contention
workloads.

Kirigami   Jan 2013 - present
With Bryan Ford, at Yale University
Kirigami is a programming model for cross-language deterministic parallelism. Designed determin-
istic interfaces for programs to communicate with each other. Devised an algorithm to efficiently
detect write-write races based on lightweight version vectors. Implemented shim layers in Java and
Python, so that programs written in either language can exchange state deterministically.

Barramundi   Jun 2013 - Aug 2013
With Rebecca Isaacs and Paul Barham, at Microsoft Research Silicon Valley
Investigated heuristics to identify poor parallel program performance due to synchronization over-
head. Microbenchmarked several .NET concurrent data-structures to understand their behavior un-
der varying workloads. Devised and evaluated a lightweight instrumentation technique to correlate
poor performance in parallel programs with contention induced back-offs in lock implementations.

CScale   Jun 2011 - Jun 2012

With Sriram Rajamani, Kaushik Rajan, Ganesan Ramalingam and Kapil Vaswani, at Microsoft Research India

CScale is a distributed programming model built on commutative replicated data-types (CRDTs), a class of eventually consistent distributed data-structures. Primarily contributed to the development of an early prototype. Contributed to the design of a protocol that builds serializable state machines from eventually consistent data-structures such as CRDTs.