Borja de Régil

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EDUCATION	**B.S. in Computer Science**, Universidad Complutense de Madrid, Madrid, Spain	June 2020

EXPERIENCE

Research Engineer, IMDEA Software Institute, Madrid — June 2020 – present

Member of the Software Verification and Distributed Computing group, working on strongly-consistent data-stores and on bridging the gap between causal and strong consistency. Responsible for the design, implementation, testing, profiling and evaluation of key-value distributed databases with transactional semantics. Developed significant experience with fault-tolerant replication and consensus protocols (Paxos), Conflict-free replicated data types (CRDTs) and property-based testing.

Research Intern, IMDEA Software Institute, Madrid — Oct. 2016 – May 2020

Developed a transactional protocol for key-value distributed databases with flexible consistency semantics. The work also involved implementing a relational (SQL) adapter on top of in-memory key-value stores, with support for secondary indexes. Acquired experience with property-based testing and networking on high-latency environments.

Participant, Google Summer of Code with BEAM Community, Remote — May 2016 – Aug. 2016

Improved the run-time performance of Lasp (https://github.com/lasp-lang/lasp), a programming language for writing eventually consistent applications based on CRDTs. Reduced end-to-end latency by applying dynamic deforestation techniques.

PUBLICATIONS

CONFERENCES

- Manuel Bravo, Alexey Gotsman, Borja de Régil and Hengfeng Wei, *UniStore: A fault-tolerant marriage of causal and strong consistency*. USENIX ATC 2021

WORKSHOPS

- Borja de Régil and Christopher Meiklejohn, *Dynamic Path Contraction for Distributed, Dynamic Dataflow Languages*. AGERE 2016

TALKS

- *Dynamic Path Contraction for Distributed, Dynamic Dataflow Languages*. AGERE 2016 — Oct. 2016

SKILLS

- Professional Experience: Go, Erlang, R, bash scripting.
- Fluent: Pony, Python, Javascript, Java.
- Familiar: Rust, C, OCaml, Clojure.

ACTIVITIES / PERSONAL PROJECTS

Regular contributor to the Pony programming language (https://ponylang.io/). My main contributions have been improving the foreign function interface by making it safer to use, as well as adding improvements for ARM64. Collaborated on porting the compiler and runtime to Apple Silicon. Maintainer of a Protocol Buffers compiler for Pony (https://github.com/ergl/pony-protobuf).

Developed a prototype client for Secure Scuttlebutt (https://scuttlebutt.nz), a peer-to-peer social network based on signature chains. The client supports P2P encrypted connections and the RPC protocol to talk to other peers (https://github.com/ergl/tarida).

LANGUAGES

- English: Full professional proficiency.
- Spanish: Native language.

INTERESTS

Distributed and peer-to-peer systems, strong (consensus) and weak consistency (CRDTs), databases.