Nuno Preguiça

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Education

Ph.D. in Computer Science, FCT/Universidade NOVA de Lisboa, Dec. 2003.

Professional Experience

Jul 2014-today Associate Professor, DI/FCT/Universidade NOVA de Lisboa.

2004-Jul 2014 Assistant Professor, DI/FCT/Universidade NOVA de Lisboa.
Courses (as lecturer): Transactional Systems (PhD: 08-19); Cloud Computing Systems (MSc: 19-20); Systems for Big Data Processing (MSc: 18-19); Stream Processing (MSc: 18-20); Reliable Distributed Systems (MSc: 15-17, 18-19); Distributed Algorithm and Systems (MSc: 15-17); Mobile and Pervasive Computing (MSc: 07-10, 12-13); Advanced Topics in Distributed Systems (MSc: 03-08); Distributed Systems (BSc: 04-10, 11-17, 19-20); Informatics for Sciences and Engineering (BSc: 12-14, 18-19).

Jan-Jul 2011 Invited Researcher, INRIA-Regal/Lip6;

Apr-Jul 2001 Research Intern, Microsoft Research, Cambridge, UK.

1998-2003 PhD Student and teaching assistant, DI/FCT/Universidade NOVA de Lisboa.

1997-1998 Software Engineer, Loyaltech Portugal.

Recent and Main Publications

Valter Balegas, Sérgio Duarte, Carla Ferreira, Rodrigo Rodrigues, Nuno Preguiça, "IPA: Invariant-Preserving Applications for Weakly Consistent Replicated Databases", *PVLDB, 12(4)*, 2018.

Cheng Li, Nuno Preguiça, Rodrigo Rodrigues, "Fine-grained consistency for geo-replicated systems", in *Proc. Usenix ATC'18*, 2018.

Albert van der Linde, Pedro Fouto, João Leitão, Nuno Preguiça, Santiago Castiñeira, Annette Bieniusa, "Legion: Enriching Internet Services with Peer-to-Peer Interactions", in *Proc. WWW'2017*, 2017.

Carlos Baquero, Nuno Preguiça, "Why logical clocks are easy", *Communications of the ACM*, 59, 4 (March 2016), 43-47.

Konstantinos Kloudas, Margarida Mamede, Nuno Preguiça, Rodrigo Rodrigues, "Pixida: Optimizing Data Parallel Jobs in Wide-Area Data Analytics", in *Proc. VLDB'16*, 2016.

Deepthi Devaki Akkoorath, Tyler Crain, Alejandro Z. Tomsic, Annette Bieniusa, Manuel Bravo, Nuno Preguiça, Zhongmiao Li, Marc Shapiro, "Cure: Strong semantics meets high availability and low latency", in *Proc. ICDCS'16*, 2016.

Valter Balegas, Sérgio Duarte, Carla Ferreira, Rodrigo Rodrigues, Nuno Preguiça, Mahsa Najafzadeh, Marc Shapiro, "Putting the Consistency back into Eventual Consistency", in *Proc. EuroSys'15*, 2015, ACM.

Cheng Li, Daniel Porto, Allen Clement, Johannes Gehrke, Nuno Preguiça, and Rodrigo Rodrigues, "Making geo-replicated systems fast as possible, consistent when necessary", in *Proc. OSDI'12*, Oct. 2012, Usenix.

Rui Garcia, Rodrigo Rodrigues, and Nuno Preguiça, "Efficient middleware for byzantine fault tolerant database replication", in *Proc. EuroSys '11*, Apr. 2011, ACM.

Marc Shapiro, Nuno Preguiça, Carlos Baquero and Marek Zawirski. "Conflict-free Replicated Data Types", in *Proc. SSS 2011 (LNCS 6976)*, Oct. 2011, Springer.

Paulo Sérgio Almeida, Carlos Baquero, Nuno Preguiça, David Hutchison, "Scalable Bloom Filters", *Information Processing Letters*, 101:6, 2007, Elsevier.

Nuno Preguiça, et. al., "Reservations for Conflict Avoidance in a Mobile Database System", in *Proc. MobiSys 2003*, May 2003, ACM.

More at http://scholar.google.com/citations?user=ldiuDWsAAAAJ (citation: 3226).

Other Publications in International Journals, Conferences and Workshops

ADBIS-DASFAA (01), ATC (14), BEATCS (11), CloudDP (13), CoopIS (03), COOTS (97), CRIWG (97, 98, 05, 09), CSCW (00), DEBS (03), DISC (brief:12), ERSADS (99, 01), Euro-Par (10, 11, 13x2), EWDC (13), HotDep (08), HotOS (01), HotPar (11), ICPADS (10), ICDCS (01, 09), ICFEC (18), IJCIS (06), IWCES (06, 07), Ladis (09), Middleware (15), Mobiquitous (11, 19), MONET (13), NCA (18), OPODIS (17), OSR (10, 15), PaPEC/PaPoC (14, 15, 16, 17, 19), PODC (brief:12), SAC (99, 15), SRDS (15), W-PSDS (14).

Keynotes and tutorials

Keynotes: "CRDTs in Practice" (w/ Marc Shapiro), Code Mesh 2015; "Conflict-free Replicated Data Types", MUSEPAT 2013.

Tutorials: "Just the Right Kind of Consistency!" (w/ Annette Bieniusa), Code Mesh 2018; 'All About Consistency: getting it right" (w/ Marc Shapiro), Code Mesh 2015; "From strong to eventual consistency: getting it right" (with Marc Shapiro), OPODIS 2013.

Awards and projects

Awards to students: Fraunhofer Portugal Challenge Awards - MSc, David Navalho (2010).

Research Grants: Google Research Award - joint with Marc Shapiro (2009).
Amazon AWS in Education Grant (2012,2014).

Research Projects (selected):

EU: LightKone - Lightweight Computation for Networks at the Edge, (2013-19, H2020); SyncFree - Large-scale computation without synchronisation, (Local PI, 2013-16, FP7).

FCT/MCTES, Portugal (as PI): Samoa - Secure and Scalable Platform for Massive-scale Mobile Applications, (2018-21); SwiftComp - Fast and Efficient Incremental Computation for Cloud Computing Environments (2013-15); RepComp - Replication of components to improve the performance and reliability of multicore systems (2010-13); Byzantium - Efficient Byzantine fault-tolerant database replication (2008-11); FEW - Files EveryWhere (2005-08).

Other: Hyrax - CrowdSourcing of Mobile devices for Edge-Cloud Development (2014-18, CMU Portugal); Concordant: CRDTs for Consistency without concurrency control, in Cloud and P2P systems (local PI, 2010-13, ANR, France)

Post-graduation activities

Phd students: 2 concluded; 3 on-going.

MSc students: 24 concluded; 3 on-going.

Software

Third-party software based on publications:

Riak Data Type, `http://docs.basho.com/riak/2.0.0/theory/concepts/crdts/`;
Dotted Version Vectors at Basho's Riak,
`http://docs.basho.com/riak/latest/theory/concepts/context/#Dotted-Version-Vectors`;
Other industry uses of Conflict-free Replicated Data Types:
`http://en.wikipedia.org/wiki/Conflict-free_replicated_data_type#Industry_use`.

Software associated with publications:

AntidoteDB, ICDCS 2015, `https://github.com/AntidoteDB/antidote`
Legion, WWW 2017, `https://legion.di.fct.unl.pt/`
Dotted Version Vectors/Sets, PODC 2012, DAIS'14,
`https://github.com/ricardobcl/Dotted-Version-Vectors`
Scalable Bloom Filters, IPL 2007, `https://sites.google.com/site/scalablebloomfilters/`

Service

Program committee: international conferences (selected): Systor (17), EuroSys (16), EuroSys shadow PC co-chair (15), OPODIS (16, 14), PaPEC (14), TRIOS (15, 13), IPIN (19-16, 11-13), Euro-Par - Mobile Comp. track (05, 07:global chair), ICDCS (06), Mobisys (04).

Steering committee:: Workshop on Principles and Practice of Consistency for Distributed Data.

Project evaluation committee: *Israel Science Foundation*, 16; *LACCIR Collaborative ICT Research Federation and its Virtual Institute*, 07-09, 11-12.

Scientific committee: international programming contests: South Western Europe Regional ACM Programming Contest (06, 07).