

Nuno Preguiça

NOVA LINCS / DI, FCT
Universidade NOVA de Lisboa
Quinta da Torre
2829-516 CAPARICA, PORTUGAL

Phone: (351) 212 948 536 (ext. 10753)
Fax: (351) 212 948 541
nuno.preguica@fct.unl.pt
<http://asc.di.fct.unl.pt/~nmp/>

Education

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

Professional Experience

Jan 2023-today Full Professor, DI/FCT/Universidade NOVA de Lisboa.

Jul 2014-2023 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: 08-24); Cloud Computing Systems (MSc: 19-24); Advanced Data Analysis (MSc: 20-24); Systems for Big Data Processing (MSc: 18-19); Stream Processing (MSc: 18-20); Reliable Distributed Systems (MSc: 15-17, 18-19, 23-23); Distributed Algorithm and Systems (MSc: 15-17, 23-24); Mobile and Pervasive Computing (MSc: 07-10, 12-13); Advanced Topics in Distributed Systems (MSc: 03-08); Distributed Systems (BSc: 04-10, 11-17, 19-24); 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

Pedro Fouto, Nuno M. Preguiça, João Leitão, “High Throughput Replication with Integrated Membership Management”, in *Proc. Usenix ATC’22*, 2022.

Kevin De Porre, Carla Ferreira, Nuno Preguiça, and Elisa Gonzalez Boix, “ECROs: building global scale systems from sequential code”, in *OOPSLA’21*, 2021.

Albert van der Linde, João Leitão, and Nuno Preguiça, “Practical Client-side Replication: Weak Consistency Semantics for Insecure Settings”, *PVLDB*, 13(11), 2020.

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

Albert van der Linde, P. Fouto, J. Leitão, N. Preguiça, S. Castiñeira, A. 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.

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.

More at <http://scholar.google.com/citations?user=ldiuDwsAAAAJ> (citations: 5158).

Other Publications in International Journals, Conferences and Workshops (selected)

ADBIS-DASFAA (01), ATC (18, 14), BEATCS (11), CloudDP (13), CoopIS (03), COOTS (97), CSCW (00), DEBS (03), DISC (brief:12), ERSADS (01, 99), Eurosys (11), Euro-Par (13x2, 11, 10), EWDC (13), Fut.Gen.CS (23, 21), HotDep (08), HotOS (01), HotPar (11), ICCCN (22), ICDCN (21), ICDCS (09, 01), ICFEC (18), ICPADS (10), IJCIS (06), IWCES (07, 06), Ladis (09), Middleware (15), Mobiquitous (19, 11), Mobisys (03), MONET (13), NCA (20, 18), OPODIS (17), OSR (15, 10), PaPEC/PaPoC (23, 20, 19, 17, 16, 15, 14), PODC (brief:12), SAC (15, 99), SRDS (22, 15), W-PSDS (14).

Keynotes and tutorials

Keynotes / Invited talks: “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).

Research Projects (selected):

EU: Tardis - Trustworthy And Resilient Decentralised Intelligence For Edge Systems (2023-25, H2020); 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: 3 concluded; 3 on-going.

MSc students: 55+ concluded; 3 on-going.

Software

Third-party software based on publications:

Riak Data Type, <https://docs.riak.com/riak/kv/2.2.3/learn/concepts/crds/index.html>;
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://www.antidotedb.eu/>; Legion, WWW 2017, <https://legion.di.fct.unl.pt/>; Babel, SRDS'22, <https://github.com/pfouto/babel-core/>; Scalable Bloom Filters, IPL 2007, <https://sites.google.com/site/scalablebloomfilters/>

Service

Program committee: international conferences (selected): Systor (17), EuroSys (25, 24, 23, 22, 20, 16), EuroSys shadow PC co-chair (15), OPODIS (23, 16, 14), PaPEC (14), TRIOS (15, 13), Euro-Par (21, 07:global chair mobile comp. track, 05), 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).