

João Pedro Barreto

PROFESSOR AT INSTITUTO SUPERIOR TÉCNICO, UNIVERSIDADE DE LISBOA · RESEARCHER AT INESC-ID

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<https://scholar.google.com/citations?user=NPc1Qe0AAAAJ>

Summary

Researcher of the Distributed Systems Group at INESC-ID, Lisboa, and assistant professor at Instituto Superior Técnico (IST), where he received his Ph.D. degree in 2009. He has a 10+ years experience in teaching and coordinating the Operating Systems and Distributed Systems undergrad courses at Instituto Superior Técnico (200+ students at each edition). He has been awarded the *Excellence in Teaching Award* from IST multiple times.

His current research interests include: high-performance computing, concurrent programming, transactional Memory, operating systems, consistency and replication, blockchains. He has participated in a number of international projects, including H2020 projects Cloud-TM, TRACE (as technical coordinator) and EPEEC (as local coordinator). He has published in top conferences such as FAST, PPOPP, IPDPS, Middleware (with a best paper award) and SPAA.

Education and Experience

Instituto Superior Técnico

ASSISTANT PROFESSOR WITH TENURE AT THE DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Lisboa, Portugal

2009-today

INESC-ID

RESEARCHER AT THE DISTRIBUTED SYSTEMS GROUP OF INESC-ID

Lisboa, Portugal

2009-today

Instituto Superior Técnico

PHD ON INFORMATION SYSTEMS AND COMPUTER ENGINEERING

- Thesis: Optimistic Replication in Weakly Connected Resource-Constrained Environments
- Supervised by Paulo Ferreira

Lisboa, Portugal

2004-2008

Instituto Superior Técnico

MSC ON INFORMATION SYSTEMS AND COMPUTER ENGINEERING

- Thesis: Haddock-FS: A Distributed File System for Mobile Ad-hoc Networks.
- Supervised by Paulo Ferreira
- Pre-Bologna MSc

Lisboa, Portugal

2002-2004

Instituto Superior Técnico

Licenciatura DEGREE ON INFORMATION SYSTEMS AND COMPUTER ENGINEERING

- Average grade: 17 out of 20

Lisboa, Portugal

1997-2002

Honors & Awards

2012	Best paper award , ACM/IFIP/USENIX Middleware Conference 2012	Montreal (Canada)
2018	Best paper award finalist , IEEE International Parallel & Distributed Processing Symposium (IPDPS)	Vancouver (Canada)
2012 & 2018	Excellence in Teaching Award - Lectures of Distributed Systems course , Instituto Superior Técnico	Lisbon
2014 & 2016	Excellence in Teaching Award - Lab classes of Operating Systems course , Instituto Superior Técnico	Lisbon
2018	Excellence in Teaching Award - Lectures of Operating Systems course , Instituto Superior Técnico	Lisbon

Publications

Around 30 publications in peer-reviewed international conferences and journals, including 17 publications in *Core A* conferences and 3 publications in *Q1-Q2 Scimago* journals.

INTERNATIONAL JOURNALS

Hardware Transactional Memory meets Memory Persistency

DANIEL CASTRO, PAOLO ROMANO AND JOÃO BARRETO. JOURNAL OF PARALLEL AND DISTRIBUTED COMPUTING, VOLUME 130, AUGUST 2019, PAGES 63-79, ELSEVIER.

JPDC, Elsevier

2019

Hash Challenges: stretching the limits of compare-by-hash in distributed data deduplication

JOÃO BARRETO, LUÍS VEIGA AND PAULO FERREIRA. INFORMATION PROCESSING LETTERS, 112(10), PP. 380-385, MAY. 2012, ELSEVIER.

IPL, Elsevier

2012

Version Vector Weighted Voting Protocol: efficient and fault-tolerant commitment for weakly connected replicas

JOÃO BARRETO AND PAULO FERREIRA. CONCURRENCY AND COMPUTATION: PRACTICE AND EXPERIENCE, 19(17), PP. 2271-2283, DEC. 2007, JOHN WILEY & SONS, LTD.

CCPE, Wiley

2007

INTERNATIONAL CONFERENCES

SPHT: Scalable Persistent Hardware Transactions

DANIEL CASTRO, ALEXANDRO BALDASSIN, JOÃO BARRETO AND PAOLO ROMANO. PROCEEDINGS OF THE 19TH USENIX CONFERENCE ON FILE AND STORAGE TECHNOLOGIES (FAST), FEB. 2021, VIRTUAL EVENT.

FAST (Core A)

2021

NVPHTM: An Efficient Phase-Based Transactional System for Non-Volatile Memory

ALEXANDRO BALDASSIN, RAFAEL MURARI, JOÃO PAULO CARVALHO, GUIDO ARAUJO, DANIEL CASTRO, JOÃO BARRETO AND PAOLO ROMANO. PROCEEDINGS OF THE 26TH INTERNATIONAL EUROPEAN CONFERENCE ON PARALLEL AND DISTRIBUTED COMPUTING (EURO-PAR 2020), AUG. 2020, WARSAW (POLAND).

Euro-Par (Core A)

2020

Impact of geo-distribution and mining pools on blockchains: a study of Ethereum.

PAULO SILVA, DAVID VAVŘIČKA, JOÃO BARRETO, MIGUEL MATOS. PROCEEDINGS OF THE 50TH IEEE/IFIP INTERNATIONAL CONFERENCE ON DEPENDABLE SYSTEMS AND NETWORKS (DSN 2020), JUN. 2020, VALENCIA (SPAIN)

DSN (Core A)

2020

Bandwidth-Aware Page Placement in NUMA

DAVID GUREYA, JOÃO NETO, REZA KARIMI, JOÃO BARRETO, PRAMOD BHATOTIA, VIVIEN QUEMA, RODRIGO RODRIGUES, PAOLO ROMANO, AND VLADIMIR VLASSOV. PROCEEDINGS OF THE 34TH IEEE INTERNATIONAL PARALLEL & DISTRIBUTED PROCESSING SYMPOSIUM (IPDPS'20), MAY 2020, IEEE

IPDPS (Core A)

2020

Bicycle Mode Activity Detection with Bluetooth Low Energy Beacons (short paper)

PAULO FERREIRA, ANDRIY ZABOLOTNY AND JOAO BARRETO. PROCEEDINGS OF THE 18TH IEEE INTERNATIONAL SYMPOSIUM ON NETWORK COMPUTING AND APPLICATIONS (NCA 2019), SEPT. 2019, PP. 1-4, IEEE, CAMBRIDGE (USA)

NCA (Core A)

2019

Stretching the capacity of Hardware Transactional Memory in IBM POWER architectures

RICARDO FILIPE AND SHADY ALAAELDIN ISSA AND PAOLO ROMANO AND JOÃO BARRETO. PROCEEDINGS OF THE 24TH SYMPOSIUM ON PRINCIPLES AND PRACTICE OF PARALLEL PROGRAMMING (PPOPP '19), FEB. 2019, PP. 107-119, ACM

PPoPP (Core A)

2019

Hardware Transactional Memory meets Persistent Memory (Best paper award finalist)

DANIEL CASTRO AND PAOLO ROMANO AND JOÃO BARRETO. IEEE INTERNATIONAL PARALLEL & DISTRIBUTED PROCESSING SYMPOSIUM (IPDPS), MAY. 2018, VANCOUVER (CANADA)

IPDPS (Core A)

2018

Online Tuning of Parallelism Degree in Parallel Nesting Transactional Memory.

JINGNA ZENG, PAOLO ROMANO, JOÃO BARRETO, LUIS RODRIGUES AND SEIF HARIDI. IEEE INTERNATIONAL PARALLEL & DISTRIBUTED PROCESSING SYMPOSIUM (IPDPS), MAY. 2018, VANCOUVER (CANADA)

IPDPS (Core A)

2018

The Future(s) of Transactional Memory

JINGNA ZENG AND JOÃO BARRETO AND SEIF HARIDI AND LUIS RODRIGUES AND PAOLO ROMANO. THE 45TH ANNUAL CONFERENCE ON PARALLEL PROCESSING (ICPP), AUG. 2016, IEEE.

ICPP (Core A)

2016

- RUBIC: Online Parallelism Tuning for Collocated Transactional Memory Applications** *SPAA (Core A)*
 AMIN MOHTASHAM AND JOÃO BARRETO. 28TH ACM SYMPOSIUM ON PARALLELISM IN ALGORITHMS AND ARCHITECTURES (SPAA), JULY 2016. 2016
- FRAME: Fair Resource Allocation in Multi-process Environments** *ICPADS (Core B)*
 AMIN MOHTASHAM, RICARDO FILIPE AND JOÃO BARRETO. 21ST IEEE INTERNATIONAL CONFERENCE ON PARALLEL AND DISTRIBUTED SYSTEMS (ICPADS 2015), DEC. 2015. 2015
- Fair Adaptive Parallelism for Concurrent Transactional Memory Applications (Brief Announcement)** *SPAA (Core A)*
 AMIN MOHTASHAM AND JOÃO BARRETO, 27TH ACM SYMPOSIUM ON PARALLELISM IN ALGORITHMS AND ARCHITECTURES (SPAA), JUN. 2015. 2015
- Leveraging Web prefetching systems with data deduplication** *NCA (Core A)*
 PEDRO NEVES AND PAULO FERREIRA AND JOÃO BARRETO, 12TH IEEE INTERNATIONAL SYMPOSIUM ON NETWORK COMPUTING AND APPLICATIONS (NCA13), JUL. 2013, IEEE. 2013
- TurboSockets: Democratizing Distributed Deduplication** *ISPA (Core B)*
 JOÃO PEDRO SALADA AND JOÃO BARRETO, 11TH IEEE INTERNATIONAL SYMPOSIUM ON PARALLEL AND DISTRIBUTED PROCESSING WITH APPLICATIONS (ISPA-13), JUL. 2013. 2013
- Unifying Thread-Level Speculation and Transactional Memory (Best Paper Award)** *Middleware (Core A)*
 JOÃO BARRETO AND ALEKSANDAR DRAGOJEVIC AND PAULO FERREIRA AND RICARDO FILIPE AND RACHID GUERRAOU, ACM/IFIP/USENIX MIDDLEWARE CONFERENCE 2012, DEC. 2012, SPRINGER, ACM. 2012
- End-to-end data deduplication for the mobile Web (short paper)** *NCA (Core A)*
 RICARDO FILIPE AND JOÃO BARRETO, NETWORK COMPUTING AND APPLICATIONS (NCA), 2011 10TH IEEE INTERNATIONAL SYMPOSIUM ON, AUG. 2011, PP. 334 - 337, IEEE. 2011
- Meaningful Metrics for Evaluating Eventual Consistency** *Euro-Par (Core A)*
 JOÃO BARRETO AND PAULO FERREIRA, EURO-PAR 2010 CONFERENCE, AUG. 2010, SPRINGER-VERLAG LNCS. 2010
- Leveraging Parallel Nesting in Transactional Memory** *PPoPP (Core A)*
 JOÃO BARRETO AND ALEKSANDAR DRAGOJEVIC AND PAULO FERREIRA AND RACHID GUERRAOU AND MICHAL KAPALKA, 15TH ACM SIGPLAN SYMPOSIUM ON PRINCIPLES AND PRACTICE OF PARALLEL PROGRAMMING (PPoPP), JAN. 2010, PP. 91-100, ACM PRESS. 2010
- Efficient Locally Trackable Deduplication in Replicated System** *Middleware (Core A)*
 JOÃO BARRETO AND PAULO FERREIRA, 10TH ACM/IFIP/USENIX INTERNATIONAL CONFERENCE ON MIDDLEWARE, DEC. 2009, SPRINGER-VERLAG NEW YORK, INC. 2009
- The Obscure Nature of Epidemic Quorum Systems** *HotMobile (Core C)*
 JOÃO BARRETO AND PAULO FERREIRA, ACM HOTMOBILE 2008: THE NINTH WORKSHOP ON MOBILE COMPUTING SYSTEMS AND APPLICATIONS, FEB. 2008, ACM PRESS. 2008
- Decentralised Commitment for Optimistic Semantic Replication** *CoopIS (Core A)*
 PIERRE SUTRA AND JOÃO BARRETO AND MARC SHAPIRO, 15TH INTERNATIONAL CONFERENCE ON COOPERATIVE INFORMATION SYSTEMS (COOPIS 2007), NOV. 2007, SPRINGER VERLAG. 2007
- Efficient Distributed Subtyping Tests** *DEBS*
 SEBASTIEN BAEHNI AND JOÃO BARRETO AND PATRICK EUGSTER AND RACHID GUERRAOU, INAUGURAL INTERNATIONAL CONFERENCE ON DISTRIBUTED EVENT-BASED SYSTEMS (DEBS 2007), JUN. 2007, PP. 214-225, ACM PRESS. 2007

Exploiting our computational surroundings for better mobile collaboration

JOÃO BARRETO AND PAULO FERREIRA AND MARC SHAPIRO, 8TH INTERNATIONAL CONFERENCE ON MOBILE DATA MANAGEMENT (MDM 2007), MAY. 2007 , PP. 110-117 , IEEE

MDM (Core C)

2007

An Efficient and Fault-Tolerant Update Commitment Protocol for Weakly Connected Replicas

JOÃO BARRETO AND PAULO FERREIRA, EURO-PAR 2005, AUG. 2005 , PP. 1059-1068 , SPRINGER VERLAG

Euro-Par (Core A)

2005

A Highly Available Replicated File System for Resource-Constrained Windows CE .Net Devices

JOÃO BARRETO AND PAULO FERREIRA, 3RD INTERNATIONAL CONFERENCE ON .NET TECHNOLOGIES, MAY. 2005

2005

A Replicated File System for Resource Constrained Mobile Devices

JOÃO BARRETO AND PAULO FERREIRA, INTERNATIONAL CONFERENCE ON APPLIED COMPUTING (IADIS'2004), MAR. 2004

2004

BOOK CHAPTERS

Nested Parallelism in Transactional Memory

RICARDO FILIPE AND JOÃO BARRETO, JAN 2015, TRANSACTIONAL MEMORY. FOUNDATIONS, ALGORITHMS, TOOLS, AND APPLICATIONS. SPRINGER

2015

Cloud-TM: An Elastic, Self-Tuning Transactional Store for the Cloud.

JOÃO BARRETO AND PIERANGELO DI SANZO AND ROBERTO PALMIERI AND PAOLO ROMANO, DATA INTENSIVE STORAGE SERVICES FOR CLOUD ENVIRONMENTS, MAY 2013, IGI-GLOBAL

2013

User-Centric Vehicular Ad-Hoc Networks and Roadside Units for Public Transport Systems

FÁBIO MANUEL DOS SANTOS PEREIRA AND JOÃO BARRETO, ROADSIDE NETWORKS FOR VEHICULAR COMMUNICATIONS: ARCHITECTURES, APPLICATIONS, AND TEST FIELDS, OCT 2012, IGI GLOBAL

2012

Data Replication Support for Collaboration in Mobile and Ubiquitous Computing Environments

JOÃO BARRETO AND PAULO FERREIRA, HANDBOOK OF RESEARCH ON MOBILITY AND COMPUTING: EVOLVING TECHNOLOGIES AND UBIQUITOUS IMPACTS (ISBN 978-1609600426), JAN 2011, INFORMATION SCIENCE PUBLISHING.

2011

NATIONAL CONFERENCES

Tackling memory asymmetry in NUMA architectures

DAVID DAHAREWA GUREYA AND RODRIGO RODRIGUES AND PAOLO ROMANO AND PRAMOD BHATOTIA AND VIVIEN QUEMA AND JOÃO BARRETO, INFORUM, SEP. 2018

Inforum

2018

PART: Árvore ART em Memória Persistente

GODINHO QUISSICO AND DANIEL CASTRO AND JOÃO BARRETO

Inforum

2017

Sistema de guarda de bicicletas em meio urbano

PEDRO MARCELO PIRES ALCOBIA AND JOÃO BARRETO, INFORUM, SEP. 2017 .

Inforum

2017

A new approach to organization and tracking of Walking School Buses

JOÃO BARRETO AND DUARTE MIGUEL PAIS ALVES BAPTISTA, INFORUM, SEP. 2016 .

Inforum

2016

Computational Offloading in Mobile Crowdsensing (Communication)

RODRIGO JOSÉ MADEIRA LOURENÇO AND JOÃO BARRETO, INFORUM 2015, SEP. 2015

Inforum

2015

Hetero-TM: Boosting Transactional Memory Support in Commodity Heterogeneous Systems (Communication)

-DIOGO ROSADO AND JOÃO BARRETO AND RICARDO FILIPE, INFORUM 2015, SEP. 2015

Inforum

2015

Real Time Video Deduplication for Video Streaming (Communication)

RAFAEL HENRIQUE RODRIGUES DOS SANTOS AND JOÃO BARRETO AND PAULO FERREIRA, INFORUM 2015, SEP. 2015

Inforum

2015

Secure Tracking: Mobile Tracking for Children and Mentally Ill Patients

RUI DIOGO DE SOUSA MORAIS AND RICARDO CHAVES AND JOÃO BARRETO, INFORUM 2015, SEP. 2015

Inforum

2015

Combining off-the-shelf transactional memory with thread-level speculation

DANIEL FILIPE SOARES PINTO AND JOÃO BARRETO AND RICARDO FILIPE, INFORUM 2014, SEP. 2014

Inforum

2014

Fair Adaptive Resource Allocation in Concurrent Transactional Memory Applications

AMIN MOHTASHAM AND JOÃO BARRETO, INFORUM 2014, SEP. 2014

Inforum

2014

Opportunistic Routing in Wireless Sensor Network for Aircraft Monitoring (Communication)

DAVID LOUREIRO LUDOVINO AND JOÃO BARRETO AND PAULO FERREIRA, INFORUM SEP. 2013

Inforum

2013

Planeador colaborativo de deslocações de bicicleta em meio urbano

NELSON FILIPE NUNES AND JOÃO BARRETO, INFORUM, SEP. 2013

Inforum

2013

Data deduplication in Web prefetching systems (poster session)

PEDRO JORGE DO NASCIMENTO NEVES AND JOÃO BARRETO AND PAULO FERREIRA, INFORUM, SEP. 2012

Inforum

2012

eBFT: Tolerância a Falhas Bizantinas em Protocolos de Replicação Epidémicos

ANDRÉ LIMÃO GALO NUNES AND JOÃO BARRETO, INFORUM 2011, SEP. 2011

Inforum

2011

FISE: An approach to data-aware connectivity (poster)

CLEMENTE RAPOSO AND JOÃO BARRETO, CRC 2010: 10ª CONFERÊNCIA SOBRE REDES DE COMPUTADORES (POSTER), OCT. 2010

CRC

2010

Towards full on-line deduplication of the Web

RICARDO FILIPE AND JOÃO BARRETO, 2º INFORUM, SEP. 2010

Inforum

2010

Transferência de Ficheiros Baseada em Chunks com Eliminação de Redundância

DIOGO MONTEIRO LUZIO FONSECA PAULO AND JOÃO BARRETO AND PAULO FERREIRA, 9ª CONFERÊNCIA SOBRE REDES DE COMPUTADORES, OCT. 2009

CRC

2009

Other Communications

Invited Talks

Scalable persistent heaps on commodity systems

JOÃO BARRETO. HUAWEI COMPUTE AND STORAGE TECHNOLOGY WORKSHOP 2020, VIRTUAL EVENT, DEC. 2020

Huawei workshop

2020

Seamlessly Embracing Memory Heterogeneity in HPC

JOÃO BARRETO. 1ST WORKSHOP ON HETEROGENEOUS MEMORY SYSTEMS, ICS2020 WORKSHOPS, VIRTUAL EVENT, JUNE 2020

ICS2020 workshops

2020

The power of mobile tracking in changing behavior towards sustainable mobility

JOÃO BARRETO. INVITED TALK AT ENCONTRO CIÊNCIA 2018, LISBOA, JUL. 2018

Ciência'18

2018

Programming in the Non-Volatile Memory Era

JOÃO BARRETO. INVITED TALK AT TELECOM SUD PARIS, PARIS, JUNE 2016

Telecom Sud Paris

2016

Leveraging Parallel Nesting in Transactional Memory

JOÃO BARRETO. SEMINAR @ CITI/FCT/UNL, MONTE DA CAPARICA, MAR. 2010

FCT/UNL

2010

Leveraging Parallel Nesting in Transactional Memory

JOÃO BARRETO. INVITED SEMINAR @ CITI/FCT/UNL, MONTE DA CAPARICA, MAR. 2010

FCT/UNL

2010

PEER-REVIEWED WORKSHOPS

Asymmetry-aware Page Placement for Contemporary NUMA Architectures

DAVID DAHAREWA GUREYA AND RODRIGO RODRIGUES AND PAOLO ROMANO AND PRAMOD BHATOTIA AND VIVIEN QUÉMA AND JOÃO BARRETO. 8TH WORKSHOP ON SYSTEMS FOR MULTI-CORE AND HETEROGENEOUS ARCHITECTURES (SFMA 2018), EUROSYS WORKSHOPS, MAY. 2018

Eurosys workshops

2018

Increasing Bicycle Usage in Smart Cities

JOÃO BARRETO AND MIGUEL RODRIGUES BENTO BARROS DA COSTA AND PAULO FERREIRA AND JOÃO BERNARDINO AND BOSSUYT EVELIEN AND JAN CHRISTIAENS AND NICK DEHAM AND ELKE FRANCHOIS AND VLEUGELS ILSE. INTERNATIONAL WORKSHOP ON SMARTCITIES: PEOPLE, TECHNOLOGY AND DATA (IWSC16), IN CONJUNCTION WITH 2016 ACM/IFIP/USENIX MIDDLEWARE, DEC. 2016, ACM

Eurosys workshops

2016

In Search of Semantic Models for Reconciling Futures and Transactional Memory

JINGNA ZENG AND PAOLO ROMANO AND LUIS RODRIGUES AND SEIF HARIDI AND JOÃO BARRETO, 7TH WORKSHOP ON THE THEORY OF TRANSACTIONAL MEMORY, COLLOCATED WITH PODC, JUL. 2015

PODC workshops

2015

Adaptive Parallelism Tuning for Coexisting Transactional Memory Applications: A Fair and Decentralized Approach

AMIN MOHTASHAM AND JOÃO BARRETO, SFMA: 5TH WORKSHOP ON SYSTEMS FOR FUTURE MULTICORE ARCHITECTURES, COLLOCATED WITH EUROSYS, APR. 2015

Eurosys workshops

2015

Utility Proportional Fairness in Parallel Transactional Memory Applications

AMIN MOHTASHAM AND JOÃO BARRETO, SFMA: 5TH WORKSHOP ON SYSTEMS FOR FUTURE MULTICORE ARCHITECTURES, COLLOCATED WITH EUROSYS, APR. 2015

Eurosys workshops

2015

Exploiting Off-the-Shelf Virtual Memory Mechanisms to Boost Software Transactional Memory

AMIN MOHTASHAM AND PAULO FERREIRA AND JOÃO BARRETO, JOINT EURO-TM/MEDIAN WORKSHOP ON DEPENDABLE MULTICORE AND TRANSACTIONAL MEMORY SYSTEMS (DMTM), IN CONJUNCTION WITH 9TH INTERNATIONAL CONFERENCE ON HIGH-PERFORMANCE, EMBEDDED ARCHITECTURES AND COMPILERS (HIPEAC 2014), VIENNA, AUSTRIA, JANUARY 22, 2014., JAN. 2014

HiPEAC workshops

2014

Highly parallel programming with Transactional Memory

RICARDO FILIPE AND JOÃO BARRETO, EURO-TM WORKSHOP ON TRANSACTIONAL MEMORY (WTM 2012), IN CONJUNCTION WITH EUROSYS 2012, APR. 2012.

Eurosys rkshops

2012

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easy-City: a route search system for public transport users

-FÁBIO MANUEL DOS SANTOS PEREIRA AND JOÃO BARRETO, THIRD INTERNATIONAL WORKSHOP ON PERVASIVE MOBILE AND EMBEDDED COMPUTING (M-MPAC 2011), A WORKSHOP OF THE ACM/IFIP/USENIX 12TH INTERNATIONAL MIDDLEWARE CONFERENCE, DEC. 2011, ACM

Middleware workshops

2011

MultiRep - Asynchronous Multi-Device Consistency

Middleware workshops

JOÃO PEDRO FERNANDES RIBEIRO AND JOÃO BARRETO AND PAULO FERREIRA, THIRD INTERNATIONAL WORKSHOP ON PERVASIVE MOBILE AND EMBEDDED COMPUTING (M-MPAC 2011). IN CONJUNCTION WITH ACM/IFIP/USENIX 12TH INTERNATIONAL MIDDLEWARE CONFERENCE 2011, DEC. 2011, ACM NEW YORK, NY.

2011

Data-aware connectivity in mobile replicated systems

SIGMOD/PODS workshops

JOÃO BARRETO AND JOÃO COELHO GARCIA AND LUÍS VEIGA AND PAULO FERREIRA, ACM INTERNATIONAL WORKSHOP ON DATA ENGINEERING FOR WIRELESS AND MOBILE ACCESS (MOBIDE 2009), JUN. 2009, ACM.

2009

MultiRep - Asynchronous Multi-Device Consistency

Middleware workshops

FÁBIO MANUEL DOS SANTOS PEREIRA AND JOÃO BARRETO, THIRD INTERNATIONAL WORKSHOP ON PERVASIVE MOBILE AND EMBEDDED COMPUTING (M-MPAC 2011). IN CONJUNCTION WITH ACM/IFIP/USENIX 12TH INTERNATIONAL MIDDLEWARE CONFERENCE 2011, DEC. 2011, ACM NEW YORK, NY.

2011

MultiRep - Asynchronous Multi-Device Consistency

Middleware workshops

JOÃO PEDRO FERNANDES RIBEIRO AND JOÃO BARRETO AND PAULO FERREIRA, THIRD INTERNATIONAL WORKSHOP ON PERVASIVE MOBILE AND EMBEDDED COMPUTING (M-MPAC 2011). IN CONJUNCTION WITH ACM/IFIP/USENIX 12TH INTERNATIONAL MIDDLEWARE CONFERENCE 2011, DEC. 2011, ACM NEW YORK, NY.

2011

Research Projects

EPEEC: European joint Effort toward a Highly Productive Programming Environment for Heterogeneous Exascale Computing

European project

LOCAL COORDINATOR

Jun. 2015 - May 2017

- Funded by EU's H2020 (801051).
- Budget: 3,991 K€.
- Partners: BSC (ES), INRIA (FR), Appentra (ES), CINECA (IT), Fraunhofer (DE), Eta Scale (SWE), CERFACS (FR), IMEC (BE), Uppsala University (SWE)
- <https://epeec-project.eu>

TRACE: Opening the cycling and walking tracking potential

European project

TECHNICAL COORDINATOR, WP LEADER (WP4)

Jun. 2015 - May 2017

- Funded by EU's H2020 (635266).
- Budget: 2,897 K€.
- Partners: INESC-ID, TIS (PT), POLIS (BE), Mobiel 21 (BE), SRM Bologna (IT), Ijsberg Consultants (NL), Southend on Sea Borough Council (UK), CM Águeda (PT), FTTE (RS), Energy Agency of Plovdiv (BU), LuxMobility (LU), Gemeentee Breda (NL)
- <http://h2020-trace.eu>

SpecSTM: Software Transactional Memory with Thread-Level Speculation Support

National project

PRINCIPAL INVESTIGATOR

Jan. 2012 - Dec. 2014

- Funded by FCT (PTDC/EIA-EIA/122785/2010).
- Budget: 127 K€.
- Partners: INESC-ID, EPFL (Switzerland)

Additionally, he has participated, with more secondary roles, in many other projects: Haddock-FS (funded by Microsoft Research), MobileTrans, UbiRep, Mercury, Psoopon, LSDMOG, Byzantium, GreenTM, Saturn (funded by the Portuguese science and technology foundation), as well as Cloud-TM, Euro-TM and Motiv (funded by the European Commission).

Knowledge Transfer and Exploitation

goBiklio start-up

Start-up

EXPLOITATION OF RESULTS FROM H2020 TRACE PROJECT

2019 - now

- Co-founded a start-up to exploit a mobile application whose development he coordinated in the course of the H2020 TRACE project.
- Main concept: behavior change towards sustainable mobility, by recognizing bicycle users and connecting them to benefits offered by local businesses.
- Application ran/running in 8 European countries, including 5 Portuguese cities.
- Commercialized in Sweden, via contract with a municipality.
- Finalists in start-up programs Smart Open Lisboa, BIG Smart Cities and BET – Bring Entrepreneurs Together.
- Participated in 2 WebSummit editions in the Startup Alpha category.

- Advanced studies program targeted to non-academic professionals with degrees in non-IT domains.
- Lecturer in the Computing Systems course during 6 editions of the course (180 students overall).

Program and Organizing Committees

2021	2nd Workshop on Heterogeneous Memory Systems (HMEM), collocated with ACM International Conference on Supercomputing (ICS) , Program chair	<i>Virtual</i>
2021	INForum – Simpósio de Informática (National Conference) , Member of the Program Committee of Parallel, Distributed and Large-Scale (CPDLA) and Computing for Sustainability (Cfs) tracks	<i>Lisboa (Portugal)</i>
2019	INForum – Simpósio de Informática (National Conference) , Member of the Program Committee of Parallel, Distributed and Large-Scale (CPDLA) and Computing for Sustainability (Cfs) tracks	<i>Guimarães (Portugal)</i>
2018	INForum – Simpósio de Informática (National Conference) , Member of the Program Committee of Parallel, Distributed and Large-Scale (CPDLA) and Mobile and Ubiquitous Computing (CMU) tracks	<i>Évora (Portugal)</i>
2017	INForum – Simpósio de Informática (National Conference) , Member of the Program Committee of Parallel, Distributed and Large-Scale (CPDLA) and Mobile and Ubiquitous Computing (CMU) tracks	<i>Aveiro (Portugal)</i>
2016	INForum – Simpósio de Informática (National Conference) , Member of the Program Committee of Parallel, Distributed and Large-Scale (CPDLA) and Mobile and Ubiquitous Computing (CMU) tracks	<i>Lisbon</i>
2015	INForum – Simpósio de Informática (National Conference) , Member of the Program Committee of Parallel, Distributed and Large-Scale (CPDLA) and Mobile and Ubiquitous Computing (CMU) tracks	<i>Covilhã (Portugal)</i>
2014	INForum – Simpósio de Informática (National Conference) , Member of the Program Committee of the Mobile and Ubiquitous Computing (CMU) track	<i>Porto (Portugal)</i>
2013	INForum – Simpósio de Informática (National Conference) , Member of the Program Committee of the Mobile and Ubiquitous Computing (CMU) track	<i>Évora (Portugal)</i>
2012	INForum – Simpósio de Informática (National Conference) , Member of the Program Committee of the Mobile and Ubiquitous Computing (CMU) track	<i>Lisboa (Portugal)</i>
2011	INForum – Simpósio de Informática (National Conference) , Member of the Program Committee of the Mobile and Ubiquitous Computing (CMU) track	<i>Coimbra (Portugal)</i>

Teaching Experience

In most of the 10+ years as an Assistant Professor, he has coordinated and taught the theoretical lectures of the following courses:

Operating Systems, Undergraduate (2nd year) course with 200+ students enrolled at each campus of IST. Responsible for 2020/21 (Taguspark campus), 2019/20 (TG), 2018/19 (Alameda campus), 2017/18 (TG), 2016/17 (AL), 2015/16 (AL), 2012/13 (TG), 2011/12 (TG) and 2009/10 (TG) editions.

Distributed Systems, Undergraduate (3rd year) course with 200+ students enrolled at each campus of IST. Responsible for 2018/19 (Taguspark campus), 2017/18 (Alameda campus), 2014/15 (TG), 2013/14 (TG), 2012/13 (TG), 2010/11 (TG) and 2009/10 (TG) editions.

Modern Operating System Kernels, PhD course. Creator and responsible for the course between 2011/12 and 2016/17.

Additionally, I have also taught laboratory classes in the Mobile and Ubiquitous Computing course, as well as in the Design and Implementation of Distributed Applications course.

Student Supervisions

PHD THESIS

2021	Ricardo Filipe , Efficient support for large transactions in transactional memory systems	<i>PhD</i>
2019	Amin Mohtasham , Fair and Efficient Parallelism Tuning in Multi-programmed Environments	<i>PhD</i>
Ongoing	David Daharewa Gureya , Bandwidth-aware page placement in asymmetric NUMA systems (Co-Supervision: Vlad Vlassov)	<i>PhD</i>
Ongoing	Paulo Silva , Improved correctness and scalability for blockchains (Co-Supervisor: Miguel Matos)	<i>PhD</i>

MSC THESIS

2021	Nicolas Guidotti , Harnessing the power of modern multi-core and GPU systems with tasks with data dependencies (co-supervision with Miguel Matos)	MSc
2021	Bruno Amorim , Exploiting future Exascale systems with Partitioned Global Address Spaces (co-supervision with Miguel Matos)	MSc
2021	Nuno Anselmo , EPTO-Hyperledger: Adding epidemic probabilistic total order for consensus to the Hyperledger blockchain architecture (co-supervision with Miguel Matos)	MSc
2021	Amândio Faustino , Boosting Machine Learning with Weakly Consistent Collectives (co-supervision with Rodrigo Rodrigues)	MSc
2021	Leonor Loureiro , Correct Smart Contract Speculation By Design (co-supervision with Miguel Matos)	MSc
2019	Diogo Peres Castilho , Etherspace: Practical Proof-of-Space for Blockchains (co-supervision with Miguel Matos)	MSc
2019	Luís Carlos Silva Aguiar , Improve Dissemination in the Ethereum network (co-supervision with Miguel Matos)	MSc
2019	Ricardo José Cordeiro Xavier , CoopMap: Democratizing Community Maps using Crowdsourcing	MSc
2019	Manuel Henrique de Almeida Rodrigues , Capturing Unattended Demand In Bike-Sharing Systems	MSc
2019	Ricardo Nuno Macedo de Jesus , Go-Together - A novel trajectory-based journey sharing platform for collective events	MSc
2019	David Vavricka , Behavior characterization in cryptocurrency networks (co-supervision with Miguel Matos)	MSc
2019	Paulo José Ribeiro Martins , BOPL: Lista Persistente Otimizada para Batches	MSc
2019	Pedro Maria de Lancastre e Távora Ceyrat , Plasma Simulation Using Modern High-level HPC Programming Platforms (co-supervision with José Monteiro)	MSc
2017	Pedro Marcelo Pires Alcobia , Estacionamento seguro para bicicletas em meio urbano	MSc
2017	Duarte Miguel Pais Alves Baptista , A new approach to organization and tracking of Walking School Buses	MSc
2017	António Maria de Sousa Nunes Marques Pinto , Promoting urban bicycle use through next-generation cycle track-and-score systems (co-supervision with Paulo Ferreira)	MSc
2017	Rui Diogo David dos Santos , Multrack: A Framework for Using Multiple Location Technologies Simultaneously (co-supervision with Paulo Ferreira)	MSc
2016	José Miguel Gonçalves Simões , Self-tuning the parallelism degree in Parallel-Nested Software Transactional Memory (co-supervision with Paolo Romano)	MSc
2015	Rodrigo José Madeira Lourenço , Cycle our City, MSc Thesis, Universidade de Lisboa	MSc
2015	Daniel Filipe Soares Pinto , specSTM - Software Transactional Memory With Thread-Level Speculation	MSc
2015	Rui Diogo de Sousa Morais , Secure Tracking: Traking por GPS de crianças e pessoas com doenças mentais (co-supervision with Ricardo Chaves)	MSc
2014	José Carlos Marante Pereira , Transactional Java Futures (co-supervision with Paolo Romano)	MSc
2013	João Pedro Amaral Nunes , Data Deduplication in Bittorrent (co-supervision with João Garcia)	MSc
2013	Nelson Filipe Nunes , Planeador colaborativo de deslocações de bicicleta em meio urbano	MSc
2013	Marcos André da Cruz Simões , Fountain File System	MSc
2013	João Pedro Salada , TurboSockets: Democratizing Distributed Deduplication	MSc
2013	Pedro Jorge do Nascimento Neves , Deduplicated-WWW: eliminação de tráfego redundante no download de documentos na Web	MSc
2012	André Limão Galo Nunes , eBFT: Tolerância a Falhas Bizantinas em Protocolos de Replicação Epidémicos	MSc
2011	Fábio Manuel dos Santos Pereira , easyCity-sistema de Pesquisa de Trajectos em Transportes Colectivos	MSc
2011	David Granchinho , Programação Paralela Usando Memória Transaccional com Suporte a Aninhamento Paralelo	MSc
2011	João Pedro Fernandes Ribeiro , Multirep (co-supervision with Paulo Ferreira)	MSc
2010	Clemente Raposo , Data-aware connectivity in mobile replicated systems	MSc
2010	Ricardo Filipe , deduplicated-HTTP: eliminação de tráfego redundante na Web	MSc
2010	Nuno Nogueira , Ubiquitous Consistency: consistência oportunista em computação ubíqua	MSc
2010	Pedro Tiago de Sousa Correia Vala , Shiftback	MSc
2010	Diogo Monteiro Luzio Fonseca Paulo , FTPChunk - sistema de transferência de ficheiros baseado em chunks (co-supervision with Paulo Ferreira)	MSc
2009	João Paiva , BackupChunk - sistema de backup baseado em chunks (co-supervision with Paulo Ferreira)	MSc

Participation in Graduation Juries

Reza Karimi Ghahfarokhi. Tolerating Constraints when Optimizing Time-Sensitive Distributed Systems

EMORY UNIVERSITY (USA)

PhD Jury Member

2021

Emiliano Silvestri. Micro-Threading: Effective Management of Tasks in Parallel Applications

DEPARTMENT OF COMPUTER ENGINEERING, CONTROL AND MANAGEMENT, OF THE UNIVERSITY OF ROME "LA SAPIENZA" (ITALY)

PhD Reviewer

2021

João Paulo Labegalini de Carvalho. Improving Hardware/Software Transactional Memory Codesign: A Phase-based and Over-Instrumentation Elimination Approach

UNIVERSIDADE ESTADUAL DE CAMPINAS (BRAZIL)

PhD Jury Member

2020

Simone Economo. Techniques and tools for program tracing and analysis with applications to parallel programming

DEPARTMENT OF COMPUTER ENGINEERING, CONTROL AND MANAGEMENT, OF THE UNIVERSITY OF ROME "LA SAPIENZA" (BRAZIL)

PhD Reviewer

2019

Simone Economo. Techniques and tools for program tracing and analysis with applications to parallel programming

DEPARTMENT OF COMPUTER ENGINEERING, CONTROL AND MANAGEMENT, OF THE UNIVERSITY OF ROME "LA SAPIENZA" (BRAZIL)

PhD Reviewer

2019

Miguel Ângelo da Terra Neves. Constraint-Based Multi-Objective Combinatorial Optimization

DEPARTAMENTO DE ENGENHARIA INFORMÁTICA, INSTITUTO SUPERIOR TÉCNICO

PhD Jury Member

2019

Sérgio Miguel Fernandes. Strongly Consistent Transactions for Enterprise Applications: Using Software Transactional Memory to Improve Consistency and Performance of Read-Dominated Workloads

DEPARTAMENTO DE ENGENHARIA INFORMÁTICA, INSTITUTO SUPERIOR TÉCNICO

PhD Jury Member

2014

Academic Management

Representative of the Architectures and Operating Systems field in the Scientific-Pedagogic Council of the "Departamento de Engenharia Informática"

DEI/IST

2017-2018