João Pedro Maia Rafael

CONTACT INFORMATION

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RESEARCH INTERESTS

Parallel and distributed programming: lockless data structures, compiler theory, event-based and task-based languages, automatic code analysis

ACADEMIC APPOINTMENTS

Researcher June 2011 to June 2013

Department of Informatics Engineering, University of Coimbra

- Center for Informatics and Systems of the University of Coimbra
  - *Aeminium: Freeing Programmers from the Shakles of Sequenciality*
  - Grant: CMU-PT/SE/0038/2008
  - Supervisor (PI): Professor Bruno Miguel Brás Cabral

  Analysis and compilation of sequential Java applications to the Aeminium runtime.

EDUCATION

University of Coimbra

M.S., Informatics Engineering, September 2013

- Final ECTS weighted average: 17.79 (20 scale)
  - Artificial Inteligence (grade 18)
  - Systems Integration (grade 18)
  - Pattern Recognition (grade 17)
  - Software Engineering (grade 17)
- Thesis: *A programming language for parallel event-driven development*
  - Development of novel programming language with dead-lock free semantics and constructs for event-based processing and parallel computation.
  - Grade 20

B.S., Informatics Engineering, July 2011

- Final ECTS weighted average: 16.93 (20 scale)
  - Compilers (grade 20)
  - Advanced Programming Laboratory (grade 20)
  - Computer Technology (grade 19)
  - Data Structures and Algorithms (grade 18)

Nuno Alvares High School

High School Degree, June 2008

- Graduation Score: 17.84 (20 scale)

PROFESSIONAL EXPERIENCE

University of Texas at Austin July 2012

Five week summer internship at the Applied Computation and Engineering Services departement under the UT Austin | Portugal project.

SERVICE

Elected M.S., Informatics Engineering student representative at FCTUC Pedagogy Committee (October 2011 to present)

Awards

University of Coimbra
- 3% Best Students Award in the year 2010/2011.
- 3% Best Students Award in the year 2009/2010.

Southwestern Europe Regional Contest (ACM-ICPC)
- Honorable mention at the 2010 SWERC programming competition.

Inter-University Programming Marathon (ACM-ICPC)
- 2nd place at the 2012 MIUP programming contest.
- 6th place at the 2011 MIUP programming contest.
- 5th place at the 2010 MIUP programming contest.

Hardware and Software Skills

Computer Programming:
- Assembly, C, C++, Java, JavaScript, OpenMP, Perl, PHP, Python, GNU make, SQL, MySQL, MATLAB, and others

Version Control and Software Configuration Management:
- Git, CVS, SVN

MATLAB skill set:
- Linear algebra, Fourier transforms, Monte Carlo analysis, numerical methods, polynomials, statistics, pattern recognition
- Toolboxes: filter design, neural networks, signal processing

Information/Internet Technology:
- Networking (UDP, TCP, RPC, 0MQ)
- Data (MySQL, CouchDB, Memcached, Redis)
- Services (Apache, BIND, DHCPD, JBoss, Tomcat)
- Frontend (HTML, CSS, jQuery)
- Frameworks (Django, node.js)

Expertise

Mathematics:
- Applied Mathematics, Real and Complex Analysis, Geometry, Game Theory, Graph Theory, Combinatorics, Linear Programing

Communications and Signal Processing:
- Probability, Random Variables, Stochastic Processes, Information Theory, Estimation, Networks

Computer Science and Engineering:
- Programming Languages, Compiler Theory
- Algorithmics, Complexity Analysis, Optimization, Data Structures
- Distributed systems, Scalability, High-Performance Computing
- Artificial Inteligence, Computer Graphics

Projects

PJavaC

A procedural Java to low-level C transcompiler developed for the B.S., Informatics Engineering's *Compilers* course. Written in ANSI C with lex and yacc.

Photon Mapper

A raytracer with photon mapping developed for the B.S., Informatics Engineering's *Computer Graphics* course. Developed in C++ with OpenMP.

Languages

	UNDERSTANDING		SPEAKING		WRITTING
	Listening	Reading	Spoken Interaction	Spoken Production	
Portuguese	C2	C2	C2	C2	C2
English	C2	C2	C2	C2	C1

Language proficiency assessment according to CEFR.

Interests

R/C models · Travelling · CouchSurfing · Cooking

References

Dr. Bruno Cabral (e-mail: bcabral@dei.uc.pt; phone: +351-239-790-013)

- Professor, Department of Informatics Engineering, University of Coimbra
- ◇ Departamento de Engenharia Informática
  Pólo II - Pinhal de Marrocos
  3030 - 290 Coimbra
  Portugal
- ⋆ *Dr. Cabral was my research and master's thesis superviser.*

Available for Contact