Alexandra Mendes

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Career Objective

Development and research on innovative tools and methods that can greatly improve the current scientific standards in software engineering.

Education

Currently enrolled in the Postgraduate Certificate in Academic Practice (PCAP) to obtain Fellowship of the Higher Education Academy
York St John University, United Kingdom

Ph.D. in Computer Science, 2012
University of Nottingham, United Kingdom

Degree in Mathematics and Computer Science (5-years degree), 2005
Universidade do Minho, Portugal
Classification: 16 out of 20, ECTS grade A (equivalent to first class honours)

Current employment

Lecturer in Computer Science 2013 – Present

I am a lecturer in Computer Science at York St John University. I am the module leader of two first-year modules on the BSc in Computer Science: "Mathematics for Computer Science" and "Introduction to Programming". I have designed and delivered the contents of these modules. They ran for the first time this year. I have also designed the contents for the second-year module "Mobile Applications Development" that I will lead next year.

Previous Experience

Web programmer 2012 (April–October)

I was involved in the organisation of the Turing-Tape Games competition, an official event of the Alan Turing Year celebrations. I contributed to the creation and maintenance of the website:

`http://algorithmicproblemsolving.org/competitions/turing-tape-games`

Ph.D. Student 2006 – 2012

Development of an innovative software tool for pen-based devices that allows structure editing of handwritten mathematics used in computer algorithms and their formal specifications. Developed using the C# programming language and the Microsoft Tablet PC API.

Teaching Assistant 2006 – 2009

Tutor of the modules "Algorithmic Problem Solving" and "Mathematics for Computer Scientists". The main responsibilities were the weekly tutorials, marking the courseworks and the exams.

Junior Researcher/Programmer 2005

Development of a database management system (DBMS) that uses a succinct model of a real database. This model was created using data reduction techniques like equi-depth multidimensional histograms. The goal was to simplify the task of performing evaluations regarding group-based database replication protocols. The query language used was SQL and the system was implemented in Java.

Junior Researcher/Programmer 2004

Contributed to the Camila project, which explores how concepts from the VDM specification language and the functional programming language Haskell can be combined. My contribution includes experiments in expressing VDM's data types (e.g. maps, sets, sequences), data type invariants and pre-conditions, within the Haskell language. This work was presented at the Overture Workshop, Newcastle (UK), 2005.

Technical Skills

Languages:

Proficient: C#, Java;

Familiar with: Android development, ASP.NET, Haskell, Scala, C, Prolog, JavaScript, HTML;

Operating Systems:

Proficient: Linux, Windows;

Familiar with: Mac OS;

Databases:

Familiar with: MS SQL Server, MySQL, PostgreSQL;

Other Skills:

Software Engineering and Software Architecture;

OOP Design Patterns;

Tablet PC programming;

Visual Studio, Eclipse, and Netbeans IDEs;

Subversion, Git;

Organisational Skills and Competences

Involved in the organisation of the Portuguese computer science conferences JOIN'03, JOIN'04 and JOIN'05;

Involved in the students group GEMCC. The main responsibilities were to manage members and help organising activities for students (2002 – 2005).

Scientific Publications

The Magic of Algorithm Design and Analysis - Teaching Algorithmic Skills using Magic Card Tricks

Joao F. Ferreira and Alexandra Mendes

19th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE 2014) in June 2014, Uppsala, Sweden.

Logic Training through Algorithmic Problem Solving
Joao F. Ferreira, Alexandra Mendes, Alcino Cunha, Carlos Baquero, Paulo Silva, L. S. Barbosa and J. N. Oliveira
Third International Congress on Tools for Teaching Logic (TICTTL'11) in June 2011, Salamanca, Spain, 2011.

Which Mathematics for the Information Society?
Joao F. Ferreira, Alexandra Mendes, Roland Backhouse, and L. S. Barbosa
2nd International FME Conference on Teaching Formal Methods (TFM'09), Eindhoven, The Netherlands, LNCS 5846, 2009

Students' Feedback on Teaching Mathematics Through The Calculational Method
Joao F. Ferreira and Alexandra Mendes
39th IEEE Frontiers in Education Conference (FiE'09), San Antonio, Texas, USA, 2009

Work in Progress: Structure Editing of Handwritten Mathematics
Alexandra Mendes
38th IEEE Frontiers in Education (FiE'08) Conference, Saratoga Springs, New York, USA, 2008.

Camila Revival: VDM meets Haskell
Joost Visser, J.N. Oliveira, L.S. Barbosa, J.F. Ferreira, and A. Mendes
In proceedings of the Overture Workshop, co-located with Formal Methods 2005. Technical Report of the University of Newcastle, United Kindgom, 2005.

Technical Reports

Off-line test automation for database replication based on group communication
Alfrânio Correia, Alexandra Mendes and Rui Oliveira
Technical report, Universidade do Minho, 2005

PURe CAMILA - A System for Software Development using Formal Methods
Alexandra Mendes and João Ferreira
Technical report, Universidade do Minho, 2005

Research Projects

Actively contributed to the following projects:

MathIS (Reinvigorating Mathematics for the Information Society)
University of Minho, Braga, Portugal (2009 – 2012)
The MathIS project aims to reinvigorate secondary-school mathematics by exploiting insights of the dynamics of algorithmic problem solving.

CAMILA: VDM meets Haskell (sub-project of PURe – Program Understanding and Re-engineering: Calculi and Applications)
University of Minho, Braga, Portugal (2004 – 2005)
The Camila project explores how concepts from the VDM specification language and the functional programming language Haskell can be combined.

Languages

Native in speaking, reading, and writing Portuguese;

Fluent in speaking, reading, and writing English;

Good knowledge in speaking and reading Spanish;

Basic knowledge in reading French.