FRANCISCO MANUEL GONÇALVES COELHO

PERSONAL DATA AND CONTACTS

Birth place and date Lisbon, 30 July, 1968.

Nacionality Portuguese

Personal contacts

    Address Avenida Portugal, N.º 18 - 3º Dto., 2790 - 128 CARNAXIDE, Portugal

    Telephone 919006379

    E-mail `mangon@gmail.com`

Professional contacts

    Address Departamento de Informática, Universidade de Évora, 7000 - 671 ÉVORA, Portugal

    Telephone 266744616

    Fax 266744546

    E-mail `fc@di.uevora.pt`

ACADEMIC DEGREES

Ph.D. in *Informatics*, branch *Computer Science*, in 2006, Universidade de Lisboa. Final classification: very good, with praise and distinction, by unamimity.

M.Sc. in *Mathematics*, specialization in *Algebra*, in 1997, Faculdade de Ciências da Universidade de Lisboa. Final classification: very good.

Graduation in *Mathematics*, Optional Group B (*Mathematics and Applications*) in 1993, Faculdade de Ciências da Universidade de Lisboa. Final classification: 13 (out of 20) values.

ACADEMIC EXPERIENCE

Professional Activities

- *Auxiliar Professor*, Departamento de Informática da Universidade de Évora, since April 2008

- *Auxiliar Professor*, Departamento de Matemática da Universidade de Évora, from July 2006 to March 2008

- *Teaching Assistent*, Departamento de Matemática da Universidade de Évora, from October 1997 to July 2006

- *Teaching Assistent*, Escola Superior de Tecnologia e Gestão do Instituto Politécnico de Leiria, from February 1997 to September 1997

- *Monitor*, Departamento de Informática da Faculdade de Ciências da Universidade de Lisboa, from December 1994 to February 1996

- *Monitor*, Departamento de Matemática do Instituto Superior de Agronomia da Universidade Técnica de Lisboa, from September 1993 to December 1993

Department Service

- Member of the Commission of the Course «Engenharia Informática», Universidade de Évora, since 2010.

- Member of the Council of the Departamento de Informática da Universidade de Évora, by inherence, since 2008.

- Member of the Commission of the Course «Ensino de Matemática», Universidade de Évora, from September 2006 to March 2008.

- Member of the Scientific Council of the Área Departamental de Ciências Exactas, Universidade de Évora, by inherence, in 2006 and 2007.

- Member of the Scientific Commission of the Departamento de Matemática, Universidade de Évora, by inherence, in 2006 and 2007.

- Member of the Council of the Departamento de Matemática, Universidade de Évora, by inherence, from 2005 to 2007.

- Elected member of the Council of the Departamento de Matemática, Universidade de Évora, from 2002 to 2004.

Participation in Jury

- (26 January 2010) *Member of the jury* of the dissertation «Simplificação de Processos com Cartão de Cidadão» [*Simplification of Citizen's Card Processes*], for the M.Sc. degree in Informatics Engineering by Mário Jorge Costa Mourão.

- (19 January 2010) *Member of the jury* of the dissertation «Autómatos Recursivos» [*Recursive Automata*], for the M.Sc. degree in Informatics Engineering by Filipe dos Santos Vieira.

- (6 December 2007) *President of the Jury* of the dissertation *Introdução à Criptografia* [*Introduction to Cryptography*], for the Graduate degree in Mathematics by Maria João Bexiga Godinho.

Scientific Advisor

- Advisor of the thesis *Autómatos Recursivos* [*Recursive Automata*], for the M.Sc. degree in Informatics Engineering by Filipe dos Santos Vieira, completed in 14 January 2010

- Advisor of the monography *Introdução à Computação Quântica* [*Introduction to Quantum Computation*], for the Graduated degree in Mathematics by Sara Felgar Silva, within the curricular unit *Projecto em Matemática* [*Project in Mathemathics*], presented in 9 July 2009

Teaching Record

Disciplines by lective year

2010-2011	2009-2010	2008-2009	2007-2008	2006-2007
SCAD	SCAD	SCAD	LC	TCC
LFA	LFA	P I	MAEG I	MAEG I
	GSC	P I	TNC	SD
	SM	TFN	SD	
2005-2006	**2004-2005**	**2003-2004**	**2002-2003**	**2001-2002**
TCC	TCC	TCC		
ALGA	ALGA	ALGA		
SD	SD	SD	ALG II	
LC	LC	LC	LC	
2000-2001	**1999-2000**	**1998-1999**	**1997-1998**	**1996-1997**
		ALG I	ALG I	M II
				PE
		ALG II	ALG II	
1995-1996	**1994-1995**	**1993-1994**		
PrI		M I		
TC				

Recent disciplines outline

SCAD *Sistemas Computacionais de Apoio à Decisão* [Decision Support Computational Systems]

> **responsability** Theoretical and Practical classes;
>
> **degree** *Mestrado em Engenharia Informática* [Master of Informatics Engineering];
>
> **program outline** Theory of Rational Decision; Multi-agent systems;

LFA *Linguagens Formais e Autómatos* [Formal Languages and Automata]

> **responsability** Theoretical and Practical classes;
>
> **degree** *Licenciatura em Engenharia Informática* [Graduation in Informatics Engineering]
>
> **program outline** Regular Expressions and Languages; Automata; Chomsky Hierarchy; Pumping Lemmas; Context Free Grammars;

SM *Sistemas Multimédia* [Multimedia Systems] (cooperation with the UNTL)

> **responsability** Theoretical and Practical classes;
>
> **degree** *Licenciatura em Engenharia Informática* [Graduation in Informatics Engineering]
>
> **program outline** HTML 5; DOM; multimedia tags; Javascript;

GSC *Gestão de Sistemas Computacionais* [Management of Computational Systems] (cooperation with the UNTL)

    responsability Theoretical and Practical classes;

    degree *Licenciatura em Engenharia Informática* [Graduation in Informatics Engineering] (at the UNTL)

    program outline instalation and administration of the content management system *drupal*;

P I *Programação I* [Programming I]

    responsability Theoretical and Practical classes;

    degree *many*

    program outline (FORTRAN) console input/output; branching; iterations; functions and routines; vectors and matrices; formats; file input/output;

TFN *Tópicos de Ferramentas Numéricas* [Topics on Numerical Tools]

    responsability Theoretical and Practical classes;

    degree *Licenciatura em Ciência e Licenciatura em Tecnologia Animal* and *Medicina Veterinária* [Graduation in Animal Science and Technology and Graduation on Veterinary Medicine]

    program outline (spreadsheets) formatting cells; elementary calculations; formula constructions; search and database functions;

LC *Lógica Computacional* [Computational Logic]

    responsability Theoretical and Practical classes;

    degree *Licenciatura em Engenharia Informática*, *Licenciatura em Matemática Aplicada* and *Licenciatura em Matemática e Ciências da Computação* [Graduation in Informatics Engineering, Graduation in Applied Mathematics and Graduation in Mathematics and Computer Sciences]

    program outline Propositional and Predicate Logic; Applications;

MAEG I *Matemática Aplicada à Economia e Gestão* [Mathematics Applied to Economy and Management]

    responsability (parcial) Practical classes

    degree *many*

    program outline Linear Equation Systems; Matrices; Gauss' Method; Topology; Continuous Functions; Definite Integration;

SD *Sistemas Dedutivos* [Deductive Systems]

    responsability Theoretical and Practical classes;

    degree *Licenciatura em Engenharia Informática*, *Licenciatura em Matemática Aplicada* and *Licenciatura em Matemática e Ciências da Computação* [Graduation in Informatics Engineering, Graduation in Applied Mathematics and Graduation in Mathematics and Computer Sciences]

    program outline Propositional and Predicate Logic; Tableaux Method; Gentzen Calculus;

TNC *Teoria dos Números e Criptografia* [Number Theory and Cryptography]

responsability Theoretical and Practical classes;

degree *Licenciatura em Matemática Aplicada* and *Licenciatura em Matemática e Ciências da Computação* [Graduation in Applied Mathematics and Graduation in Mathematics and Computer Sciences]

program outline Elementary Arithmetic; Fundamental Theorems (Fermat, Euler, Wilson, Chinese Remainder, φ and σ functions, Diofantine Equations); Applications (numerical identification systems, cryptography);

TCC *Teoria da Computação e Complexidade* [Computation and Complexity Theory]

responsability Theoretical and Practical classes;

degree *Licenciatura em Engenharia Informática*, *Licenciatura em Matemática Aplicada* and *Licenciatura em Matemática e Ciências da Computação* [Graduation in Informatics Engineering, Graduation in Applied Mathematics and Graduation in Mathematics and Computer Sciences]

program outline Register Machines; Recursive Functions; Halting Problem; Decidability; Rice Theorem; Polinomial Transformations; NP-completeness; Examples from Graph Theory;

Older disciplines

ALGA *Álgebra Linear e Geometria Analítica* [Calculus and Analytic Geometry]

ALG I *Álgebra Linear e Geometria I* [Calculus and Geometry I]

ALG II *Álgebra Linear e Geometria II* [Calculus and Geometry II]

M II *Matemática II* [Mathematics II]

PE *Probabilidades e Estatística* [Probabilities and Statistics]

PrI *Programação Imperativa* [Imperative Programming]

TC *Teoria da Computação* [Theory of Computation]

M I *Matemática I* [Mathematics I]

Activities of Academic Extension

Cooperation with the UNTL (Universidade Nacional de Timor-Leste) February 2010 – April 2010, Responsible teacher of the disciplines *Sistemas Multimédia* [Multimedia Systems] and *Gestão de Sistemas Computacionais* [Management of Computational Systems], under the cooperation protocol between the UNTL and the *Fundação das Universidades Portuguesas* (FUP), supporting the course *Engenharia Informática* [Informatics Engeneering].

Curso Preparatório de Matemática [*Mathematics Preparatory Course*] Responsible teacher of the module *Geometria, Trigonometria e Números complexos* [Geometry, Trigonometry and Complex numbers]. In the lective year 2006 – 2007 the Departamento de Matemática da Universidade de Évora started a support activity to candidates to the University.

Scientific Activities

Research Interests

Computation Theory Computability and Complexity

Logic Knowledge representation, Semantics, Truth *vs.* Language, Syntax, Proof

Artificial Intelligence Individual behavior, Control Structures

Social Simulation Distributed Control Structures

Research Centers

- member of LabMAg, Laboratório de Modelação de Agentes, since 2007

- collaborator of LabMAg, from 2001 to 2007

Monographies to Academic Degrees

- *Emergência e Colapso de Poder* [*Emergence and Collapse of Power*]. Dissertation for the Ph.D. degree in Informatics, branch Computer Science. Faculdade de Ciências da Universidade de Lisboa (2006).

- *Polinómios, Réguas e Compassos — Problemas de computabilidade e decidibilidade* [*Polynomials, Rules and Compasses — Problems of computability and decidability*]. Dissertation for the M. Sc. degree in Mathematics. Faculdade de Ciências da Universidade de Lisboa (1997).

Books

- *Teoria da Computação, Computabilidade e Complexidade* [*Theory of computation, computability and complexity*], Escolar Editora, 2010.

Papers in Journals with Referee

- (invited paper) Coelho, Francisco and Coelho, Helder. *Meta agency and individual power*. In Web Intelligence and Agent Systems - An International Journal, IOS Press (2010).

- (invited paper) Mycka, Jerzy, Costa, José Félix and Coelho, Francisco. *The Euclid Abstract Machine*, In International Journal of Unconventional Computing 4(3): pages 223–248, Old City Publishing (2008).

Papers in Proceedings of International Meetings

- Mycka, Jerzy, Coelho, Francisco and Costa, José Félix, *The Euclid Abstract Machine: Trisection of the Angle and the Halting Problem*. In Unconventional Computation, Lecture Notes in Computer Science, Volume 4135, pages 195–206, Springer Berlin/Heidelberg (2006).

- Coelho, Francisco and Coelho, Helder. *Discussing agent power-of by experimentation*. In Proceedings of MASTA/EPIA05 (2005).

- Coelho, Francisco and Coelho, Helder. *Predictability for autonomous decision support*. In Multi-Agent-Based Simulation VI: International Workshop, volume 3891 of Lecture Notes in Computer Science, pages 88–91. Springer, Berlin/Heidelberg (2005).

- Coelho, Francisco and Coelho, Helder. *Meta-agency and individual-power, an experimental approach*. In IEEE/WIC/ACM International Conference on Intelligent Agent Technology, pages 414–420 (2005).

- Coelho, Francisco and Coelho, Helder. *An application of meta-agency and individual-power, recovering reactive agents*. In International Mediterranean Multiconference, Conceptual Modeling and Simulation Conference, pages 1–9 (2005).

- Coelho, Francisco and Coelho, Helder, *An agent architecture to handle commitment*. In International Mediterranean Modeling Multiconference, volume European Modeling Simulation Symposium, pages 87–94 (2005).

- Coelho, Francisco and Coelho, Helder. *Towards Individual Power Design*. In Progress in Artificial Intelligence, Lecture Notes on AI, Volume 2902, pages 366–378, Springer (2003).

Communications in International Scientific Meetings

- *System Dynamics Through Individual Behavior Simulation*, Dynamical Systems in Biology, Évora, Portugal, 7 March 2008.

- *An agent architecture to handle commitment*, at International Mediterranean Modeling Multiconference, Marseilles, France, 20 to 22 October 2005.

- *An agent architecture to handle commitment*, International Conference on Intelligent Agent Technology, Compiègne, France, 19 to 22 September 2005.

- *Predictability for autonomous decision support*, AAMAS 2005, The Fourth International Joint Conference on Autonomous Agents & Multi Agent Systems, Utrecht, Holland, 25 to 29 July 2005.

- *Towards Individual Power Design*, EPIA 2003, Beja, Portugal, June 2003.

- *Quantum Secure Communication*, ISQCI 2002, International School on Quantum Computation and Information, Lisbon, Portugal, 2 to 7 September 2002.

Communications in National Scientific Meetings

- *Autómatos Quânticos* [*Quantum Automata*], Instituto Superior de Agronomia, June 2000.

- *Autómatos Quânticos* [*Quantum Automata*], Seminário Conjunto CIMA-DMat, Universidade de Évora, June 2000.

- *Quantum Grammars*, Seminário de Lógica Matemática, Instituto Superior Técnico, May 2000.

- *Autómatos Quânticos* [*Quantum Automata*], Seminário de Lógica Matemática, Instituto Superior Técnico, January 2000.

- *Computação Geométrica* [*Geometric Computation*], Seminário de Lógica Matemática, Faculdade de Ciências da Universidade de Lisboa.

- *O Teorema de Matiyasevich II* [*Matiyasevich Theorem II*], Seminário de Lógica Matemática, Faculdade de Ciências da Universidade de Lisboa, 1997.

- *O Teorema de Matiyasevich I* [*Matiyasevich Theorem I*], Seminário de Lógica Matemática, Faculdade de Ciências da Universidade de Lisboa, 1997.

Organization of National Scientific Meetings

MIUP 2010   *Maratona Inter-Universitária de Programação 2010* [Programming Inter-Universitary Marathon] Head of the organizing committee. Departamento de Informática da Universidade de Évora, 16 October 2010;

Bolsas de estudo e ajudas de formação

- M.Sc. scholarship, Junta Nacional de Investigação Científica e Tecnológica, 1996.

<div align="right">[October 10, 2010]</div>