

Projectos Pluridisciplinares Concurso 2007

Apoio:



> FORMULÁRIO DE CANDIDATURA <

> PROJECTO

Título do Projecto	Education and language in memories of labour				
Nome do Coordenador	Nelma Moreira				
Instituição	Laboratório de Inteligência Artificial e Ciência de Computadores				
Departamento	Núcleo de Ciência de Computadores				
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> EQUIPA DE INVESTIGAÇÃO

Nome do Coordenador	Nelma Moreira	
Outros investigadores	N.º 8	Indicar nome, instituição, departamento, categoria

- Joaquim dos Santos Barbosa, Assistente, Faculdade de Letras da Universidade do Porto, Departamento de Estudos Portugueses e Estudos Românicos, Secção de Linguística;
- Rogério Ventura dos Santos Reis, Assistente Convidado, Faculdade de Ciências da Universidade do Porto, Departamento de Ciência de Computadores;
- Norberto Lopes, 4o ano da Licenciatura de Ciências de Computadores, Faculdade de Ciências da Universidade do Porto; assistente de investigação, no Laboratório de Inteligência Artificial e de Ciência de Computadores;
- João Carlos Pereira Caramelo, Assistente, Faculdade de Psicologia e Ciências da Educação da Universidade do Porto, Departamento de Ciências da Educação;
- Maria Teresa Guimarães de Medina, Assistente, Faculdade de Psicologia e Ciências da Educação da Universidade do Porto, Departamento de Ciências da Educação;
- Cristina Alexandra Marques Nogueira, Conselho Directivo, Universidade Popular do Porto, aluna do 2o Curso de Doutoramento em Ciências da Educação da Faculdade de Psicologia e Ciências da Educação da Universidade do Porto;
- Silvestre de Almeida Lacerda, vice-presidente, Universidade Popular do Porto, Curso de Especialização em Ciências Documentais;
- Manuel Vicente de Sousa Lima Loff, Professor Auxiliar, Faculdade de Letras da Universidade do Porto, Departamento de História e Estudos Políticos e Internacionais.

Alunos de pré-graduação**N.º**

Indicar nome, curso, ano do curso, contactos pessoais

- Mara Elisa de Paiva Fernandes Matias, 3º ano da Licenciatura em Ciência de Computadores da Faculdade de Ciências da Universidade do Porto, email: c0207061@dcc.online.pt; tel.:916055585;
- João Emanuel Leitão Ramalho, 4º da Licenciatura de Línguas e Literaturas Modernas, variante Estudos Português/Inglês, Tel: 934508764;
- Pedro Afonso Lebre da Rocha, Faculdade de Psicologia e Ciências da Educação - estudante do curso de Ciências da Educação, 2º ano, lce05057@fpce.up.pt, tel: 967578168;
- Adriana Marcela Veiga Pinho Ferreira, Faculdade de Psicologia e Ciências da Educação - estudante do curso de Ciências da Educação, 2º ano, tel: 933552788;
- Raquel Rodrigues Monteiro, Faculdade de Psicologia e Ciências da Educação - estudante do curso de Ciências da Educação, 2º ano, tel: 918280913;
- Carla Patrícia Figueiredo, Faculdade de Psicologia e Ciências da Educação - estudante do curso de Ciências da Educação, 2º ano, tel: 914148164;
- Marlene Sousa Carvalho, Faculdade de Psicologia e Ciências da Educação - estudante do curso de Ciências da Educação, 2º ano, tel: 917081408.

> FINANCIAMENTO E ORÇAMENTO DETALHADO**Montante a solicitar** 4000 euros

Despesa	Valor
Computer server	1.200,00
3 Computers	2.700,00
Current expenses	100,00
Total	4.000,00 euros

> DESCRIÇÃO DO PROJECTO (máximo 600 palavras)

The research team and students of this project involve different social sciences domains (Linguistic, Education Sciences, History, Information Sciences), and Computer Science, and aims to contribute, in a multi-referential perspective, to understand the processes of interaction between work, personal formation and professional identity of workers, in Porto, during the second half of the 20th century, through the analysis of biographical narratives.

The project has its origins and continues research work already developed by the "Centro de Documentação e Informação sobre o Movimento Operário e Popular do Porto" of Universidade Popular do Porto (CDI) - <http://cdi.upp.pt>, where members of the research team have worked with. CDI's goals are the preservation of the social, cultural and political memory, and oral and social history of Porto, during the 20th century, as well as its diffusion. In what the oral history is concerned, CDI has already a corpus of 80 interviews with workers of different professions and with distinct social experiences. The quantity, diversity and quality of the collected information by the CDI inspires its study in a multidisciplinary approach.

The current project has two main research axes that aim to understand the processes of interaction between work, personal formation and professional identity. The first of these axes focus on a linguistic and social-linguistic analysis, the second one focus on the education/formation processes, both of them interconnected with research in computational linguistics and semi-structured data processing.

We aim to contribute to the analysis of several linguistic characteristics and its relationships with social, educational and dialectal conditions of the interviewees, using the corpus of the narratives. A relevant linguistic aspect is the oral nature of the corpus, as it is composed by interviews transcriptions. Amongst the expected results are the identification of synchronical varieties (of age, regional and social) associated with the oral corpus under analysis, as well as the identification of diachronical lexical changes and the use of certain patterns of language. In the first place, we will carry out a selection of lexical items and syntactic constructions patterns to be computationally identified and for that we will develop the necessary computational applications. Then we will proceed to the statistical analysis and the development of a knowledge base with the relevant patterns. Finally we will make an evaluation of the results towards a socio-linguistic approach, namely by identifying marks of regionalism, of power and of gender.

From the Education Sciences point of view the aim will be the understanding of the articulation of the workers biographic pathways with processes of education and formation that transcends the spaces, the epochs and the actors institutionally defined as educational. These processes are indissociated of the construction of a worker's identity where the dimensions of civic, political and professional education are articulated.

For the organization and classification of the narratives computational applications for the manipulation of semi-structured documents will be used.

> DESCRIÇÃO DO PROJECTO (continuação)

> **PLANO DE TRABALHOS** (juntar objectivos e resultados esperados, cronograma e listagem de tarefas)

Concerning the project team:

1. **Consolidation of a multidisciplinary team that includes researchers of different scientific domains that carry out work with young researchers.**
2. **To understand the interaction processes between work, personal formation and professional identity.**
3. **To contribute to the computational processing of Portuguese and the development of software applications to be distributed under free software license, that allow the manipulation of semi-structured documents that facilitates the access, classification and search of the information.**

Concerning the work of the students of Linguistics and of Computational Processing of Portuguese:

1. **To select lexical items and identification of language's patterns used in workers' speech.**
2. **To analyse lexical variations and changes of use of certain syntactic constructions in a socio-linguistic perspective.**
3. **The development of software applications for lexical and syntactic analysis of corpora, as well as for statistical analysis and syntactic patterns identification.**

Concerning the work of the students of Education

Sciences and of computational manipulation of semi-structured documents:

1. **To analyse the workers and social activists biographic narratives to understand the educational dimension associated to social environments and workers political struggle at the city of Porto, during in the second half of 20th century.**
2. **To identify and to characterize the processes of self-formation and experiential learning related with professional experience.**
3. **To discuss the civic education dimension related to the labour and friendship processes at work.**

Tasks

I.

Tasks to be carried out by the team members with the students of Linguistics and of Computational Processing of Portuguese:

1.

1.1 Selection of lexical items and syntactic constructions.

1.2 Analysis, integration and development of software tools for the manipulation of dictionaries, morphological analysis and corpora tagging.

2.

2.1 Design and implementation of a software application for several lexical statistics, such as:

- lexical items occurrences
- syntactic categories occurrences

2.2 Evaluation of the statistical results and its relevance for an social-linguistic approach of the corpus.

3.

3.1 Identification of syntactic patterns of language, namely:

- cases of subordination (temporal, concessive and completive clauses)
- passive constructions

3.2 Development of software tools for the detection and filtering of the identified patterns of language.

3.3 Analysis of the results and evaluation of the software tools developed.

4.

4.1 Identification of other relevant patterns of language.

4.2 Construction of a knowledge base (tree-bank) of patterns and the development of software tools for its manipulation.

5.

5.1 Socio-linguistic evaluation of the results.

5.2 Evaluation of the software tools and make them available as free software.

5.3 Preparation of the public presentation of the project.

II.

Tasks to be carried out by the team members with the students of Education Sciences and of computational manipulation of semi-structured documents:

1. Organization and processing of the biographic narratives.

2. "Fluctuant" reading of the biographic narratives.

3. Building semi-structured documents associated to the narratives using software tools developed the scope of the project.

4. Identification of topics associated with the narratives.

5. Construction of categories from the narratives.

6. Construction of inter-category networks.

7. Classification and annotation of the narratives using the classification editor developed in the project.

8. Analysis and theoretical interpretation of the the new and pre-defined categories.

9. Preparation of the public presentation of the project.

Timeline

1. month I.1.1, I.1.2, II.1

2. month I.2.1 I.2.2, II.2

3. month I.2.2,II.2, II.3

4. month I.3.1, II.4,II.5

5. month I.3.2, II.5, II.6

6. month I.3.4, I.4.1, II.7

7. month I.4.1, I.4.2, II.8

8. month I.5.1, I.5.2, II.8

9. month I.5.3, II.8, II.9

> CURRICULUM VITAE DO COORDENADOR (não ultrapassar este espaço)

Nelma Resende Araújo Moreira, was born in Paris, France on 4/06/1961.

Academic degrees:

1997,-Phd. in Computer Science, Universidade do Porto, with a thesis entitled "Restrições Complexas sobre Álgebras de Árvores e Aplicação a Gramáticas Lógicas".

1989 - Provas de Aptidão Pedagógica e Capacidade Científica, Universidade do Porto, with thesis entitled "Representação de Semântica de Referências Temporais em Linguagem Natural"

1984- Degree in Applied Mathematics, FCUP

Academic positions:

1997- Lecturer, Departamento de Ciência de Computadores da FCUP.

1996-1997 Assistant, Departamento de Ciência de Computadores da FCUP.

1989-1996 Assistant, Grupo de Matemática Aplicada da FCUP.

1984-1989 Teacher Assistant, Grupo de Matemática Aplicada da FCUP.

Present research interests:

Automata Theory and formal languages; Symbolic constraint programming and grammar formalisms; Interactive proof assistants and program verification; Semi-structured documents

Supervising experience:

Supervised and co-supervised several diploma theses and three master theses.

Currently co-supervises one master thesis and one doctoral thesis.

Participation in research projects:

Project "ASA: Automata, Semigroups and Applications", FCT, PTDC/MAT/65481/2006, 2007-2009.

Project "Memórias do Trabalho", FCT, POCI/CED/60786/2004, 2006-2008.

Project "AGILMAT-Automatic Generation of Interactive Drills for Mathematics Learning", FCT, POSI/CHS/48565/2002, 2003-2006.

Project "Ganesh: Distributed and Modular environment for Computer Science Learning", FCT, 1999-2001.

Project "CORE: Sistemas Formais e Complexidade Computacional", FCT, 1999-2001.

Project "PROLOPPE: Programação em Lógica Paralela com Extensões", Praxis 3/3.1/TIT/24/94, 1994-1997.

Project "Constraint Logic Grammars", Universidade do Porto e CCE (1989-1991)

Project "Eurotra", CCE, 1988-1990.

Project "Interfaces Naturais para Acesso a Bases de Dados", FCUP e INESC-Norte, 1987-1988.

Selected Publications:

Enumeration and Generation with a String Automata Representation. Accepted for publication in J. of TCS, special issue "Selected papers of DCFS 2006". (with M. Almeida and R. Reis).

Ferramentas para a Construção de Arquivos Digitais de História Oral. In Actas da 5a XATA 2007, Universidade do Minho, 2007.(with S. Lacerda, N. Lopes and R. Reis)

Designing a Solver for Arithmetic Constraints to Support Education in Mathematics. Proc of AIAI, 2006, Greece. IFIP, SV. (with A. P. Tomás and N. Pereira).

On the density of languages representing finite set partitions. Journal of Integer Sequences, 8(05.2.8), 2005. (with R.Reis)

Interactive Manipulation of Regular Objects with FAdo. In Proc. of ITICSE 2005, ACM, 2005.(with R. Reis)

Constraint categorial grammars. In N. Mamede and C. Pinto-Ferreira, editors, Proc. of the EPIA 95, volume 990 of LNAI. SV, 1995. (with L. Damas)

The formal and computational theory of complex constraint solution. In C. Rupp, M. A. Rosner, and R. L. Johnson, editors, Constraints, Language, and Computation, Computation in Cognitive Science, pages 149-166. AP, 1994. (with L. Damas and G. Varile)

Resolution of constraints in algebras of rational trees. In M. Filgueiras and L. Damas, editors, Proc. of EPIA 93, volume 727 of LNAI, pages 61-76. SV, 1993.(with L. Damas and S. Broda)

CLG(n): Constraint logic grammars. In H.Karlgren, editor, Proc. of 13th COLING, volume 3, pages 7-12, Helsinki, 1990. (with S. Balari, L. Damas and G. B. Varile)

Semantic analysis of time and tense in natural language: an implementation. In J.P Martins and E.M. Morgado, editors, Proc. of EPIA 89, number 390 in LNAI, Berlin, 1989. SV.