Alexandra Luccioni, M.Sc.

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OBJECTIVE

To launch a sucessful research career at the crossroads of various domains of research, notably: Natural Language Understanding and Processing, Artificial Intelligence and Machine Learning.

EDUCATION

Doctor of Philosophy, **Cognitive Computing,** Expected September 2017.
Université du Québec à Montréal, department of Computer Science
Dissertation: STI-DICO: an Intelligent Tutoring System for future French teachers
Advisors: Jacqueline Bourdeau, Ophélie Tremblay

Masters of Science, **Cognitive Science, Minor in Computational Linguistics**, June 2012
École normale supérieure, Paris, France.
Dissertation : Overspecified References: An Experiment on Lexical Acquisition in Virtual Environments
Advisors : Lucianna Benotti, Emmanuel Chemla

Bachelor of Arts, Linguistics ('Sciences du langage')
Université Paris III: Sorbonne Nouvelle, Paris, France

HONOURS AND GRANTS

Average PhD grade of 4.04/4.13
Doctoral Scholarship from the Fonds de Recherche du Québec (Société et Culture), 2014-2017
Finalist of the Pierre Péladeau UQAM Entrepreneurial Scholarship (2016)
Recipient of the MITACS Globalink Scholarship – INRIA (2016)
Recipient of the UQAM Foundation Excellence Scholarship (2014-2016)

RELATED EXPERIENCE

RESEARCH

Main Researcher, Department of Computer Science, UQAM, Montréal, Canada
September 2012- Present

- PhD research project at the crossroads between linguistics, artificial intelligence and cognitive science
- The main objective consists of creating an Intelligent Tutoring System, a computer-based tutor that uses Artificial Intelligence and Machine Learning techniques to carry out the cognitive diagnostic of a learner and to present them with learning materials, activities and feedback in real time
- This includes : the design and development of an interactive interface in HTML5, coding of behavioral graphs and logical rules in Java and JESS, indexing of content with an ontology in OWL, and the development of a dynamic cognitive model of learner skills and knowledge.
- Intermediate results have been presented at the European Conference on Technology-Enhanced Learning and at the Acfas congress, as well as published in several peer-reviewed journals.

Research Assistant, Department of Language Didactics, UQAM, Montréal, Canada

March 2014 – Present
Research assistant on a project in linguistics and cognitive science under the direction of Ophélie Tremblay. The intermediary results of the project were published in Formation et Profession (2013) and submitted to the International Journal of Lexicology.

Academic Consultant, Research and Development Partnership with iSpeaky, Inc., Montréal, Canada
January 2014- December 2014

- Industrial research project consisting in developing interactive linguistic resources and evaluation techniques for an E-learning portal in English as a Second Language and French as a Second Language
- Responsibility for the development of learning materials, tests and quizzes, as well as the evaluation and beta testing of the portal
- Usage of Natural Language Processing (NLP) and Item-Response Theory (IRT) techniques in order to evaluate learner's proficiency and to recommend adequate resources
- The research project was funded by the BMP scholarship (NSERC-FRQNT) and the Canadian Media Fund

Research Assistant, TELUQ University, Montréal, Canada
September 2013- October 2014

- Carrying out the research and design of several online courses for TELUQ university
- This included the creation of learning materials, recording audio and video capsules
- Subjects included : Artificial Intelligence in Education (AIED), Intelligent Tutoring Systems, Educational Technologies.

Research Assistant, MUSE Logic Project, UQAM and TELUQ, Montréal, Canada
September 2012- August 2013

- Part-time research project consisting in the design and development of an Intelligent Tutoring System to develop learners' reasoning skills in formal logic
- This project brought together researchers from several domains: philosophy, psychology, education, cognitive science, and computer science.
- My role consisted of being the liaison between the various teams, notably the computer science team and the education team, to ensure the seamless design of learning activities and adaptive learner profiles

Main researcher, École normale supérieure (Paris, France) and Universidad Nacional de Cordoba (Cordoba, Argentina)

- Research internship involving a psycholinguistic experiment on 75 native Spanish speakers learning lexemes in Russian using a "serious game" in a virtual reality environment.
- The experiment studied the effect of different parameters in virtual reality and their effect on learning a foreign language
- The results were presented at the 16th SemDial Workshop (2012) and published in Computers in Human Behavior (2015).

TEACHING

Lecturer, Department of Computer Science, UQAM (Montréal, Canada)
January- June 2016
Lecturer for INF1026 (Introduction to Office Tools, Software and Internet).
Responsible for preparing course materials, exercises and assignments for classes of 40-60 students of various levels.
Topics covered include : word processing, HTML, internet and web protocols, and basic computer science concepts.

Teaching assistant, Department of Computer Science, Department of Language Didactics, UQAM
September 2014-December 2015
Teaching assistant in several courses, including: Introduction to Intelligent Tutoring Systems and Second Language Didactics, with Profs. Nkambou and Fortier.

Teaching assistant, Language School, UQAM
Teaching assistant in French as a Foreign Language, for several classes such as "Elementary French with Specific Objectives" and "Advanced Oral Comprehension**".**

SKILLS

Scripting languages: Python, Prolog, Lisp, and Java, basic knowledge of C.
Web programming skills: Joomla, HTML5, WordPress.
Source control management: git, svn, mercurial
Operating Environments: Windows, Macintosh OS, Linux (Ubuntu)
Experience with data mining tools: SPSS, R, MatLab, NumPy.
Mastery of writing and editing tools: Microsoft Office, LibreOffice, LateX.

KEY PUBLICATIONS

Luccioni, A., Bourdeau, J., Massardi, J., & Nkambou, R. (2016). STI-DICO: A Web-Based ITS for Fostering Dictionary Skills and Knowledge. In *2016 European Conference on Technology Enhanced Learning* (pp. 416-421). Springer International Publishing.

Luccioni, A., Bourdeau, J., Tremblay, O. (2016, September). Fostering Dictionary Use via an Intelligent Tutoring System, In *2016 European Conference on Technology Enhanced Learning, Doctoral Consortium*, September 16th, 2016

Luccioni, A., Bourdeau, J., Paquette, G. (2016, June) . STI-DICO: un système tutoriel intelligent pour le développement des connaissances et compétences dictionnairiques chez les futurs maîtres. *Actes de la Journée scientifique du LICEF 2016: Modélisation d' environnements fonctionnels,* June 9th, 2016.

Luccioni, A., Nkambou, R., Bourdeau, J., Coulombe, C. (2016) STI-DICO : a Web-Based System for Intelligent Tutoring of Dictionary Skills, *2016 World Wide Web Conference, Web Science and Technology for Education Workshop*, April 13, 2016.

Luccioni, A., Tremblay, O., Bourdeau, J. (2016) La modélisation du processus de consultation du dictionnaire via un référentiel de connaissances et de compétences dictionnairiques, *Colloque Éducatif Présent! 2016*, Montréal, Québec, March 8, 2016.

Luccioni, A., (2015) STI-DICO : un système tutoriel intelligent pour le développement des connaissances et compétences métalinguistiques chez les futurs maîtres au primaire, *VocUM 2015: Language, culture, and identity*, November 2015.

Luccioni, A., Benotti, L., Landragin, F. (2015), Overspecified References: An Experiment on Lexical Acquisition in a Virtual Environment, *Computers in Human Behavior, 49,* 94–101

Tremblay, O., Anctil, D. et **Vorobyova, A.** (2013). Utiliser le dictionnaire efficacement : une compétence à développer. *Formation et profession*, 21(3), 95-98.

Vorobyova, A., Benotti, B., Landragin, F. (2013) "*Overspecified References: An Experiment on Lexical Acquisition in Virtual Environments*" (Poster), *International Conference on Multilingualism: Linguistic Challenges and Neurocognitive Mechanisms*, Montréal, Canada, October 2013.

REFERENCES

Jacqueline Bourdeau (Full professor at TELUQ in Education)
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Roger Nkambou (Full professor at UQAM in Computer Science)
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