Buenos Aires, Argentina

April 28, 2015

Dear selection committee:

Hello, my name is Martin Miguel. I am a soon-to-be Computer Science Master from the Universidad of Buenos Aires, Argentina. I am currently wrapping up my Master's Thesis on music cognition topics. My thesis topic is modeling tactus inference (or BI) but looking for a model that can provide insight on how we synchronize with music when we hear it. I heard of the doctoral opportunity by following the music cognition blog by Prof. Dr. H. Honing.

I got into the field of music cognition out of curiosity for the musical processes that happen in a listener's mind. I have been dancing and playing music for over 10 years now and I am very curious about what's the magic that makes us twitch. In particular, I have been learning to tap dance for the last 4 years and I have found some rhythmical passages that are particularly evocative. This is not common in tap dancing passages and I am afraid that comes from lack of theoretical knowledge on how to produce rhythms. The issue lead to the idea of trying to model some of the rhythmical cognitive processes in play in order to develop a tool that can help tap musicians get closer to their own productions. In particular, I want to make situations of tension and unexpectedness in music explicit, being this what I believe makes this passages so interesting. The focus is on rhythmical expectations, i.e. the timing of the events.

I will be graduating with a Bs + Ms by the end of June. I am very interesting in further pursuing my line of research, but I'm looking towards doing so among people who know the subject better. Sadly, there is no one else at UBA working on these topics. As a future view, I'd like to enhance my model (or work on another one) to try to capture the whole human process of understanding rhythmicality. I'd also like to apply this rhythm perception model to other situations such as the timing of speech in drama performances, oral story-telling and stand-up comedy.

The research goals within ILLC match my interests perfectly. Particularly, the music cognition group[1] has been researching very similar topics with similar approaches. That is, the group focuses mainly on timing characteristics of rhythms, focusing on the understanding the origin of expressiveness in them and using statistical methodologies for the task[2]. review

Ending

Incluir algo del paper escrito (link a docs?)

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[1] http://cf.hum.uva.nl/mmm/

[2] Sadakata. M., Desain, P. & Honing, H. (2006). The Bayesian way to relate rhythm perception and production. Music Perception, 23(3), 267-286. (c) 2006

Carta de diego sobre la fecha de recibida

Martin Miguel

Curriculum Vitae

Almagro, Capital Federal
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Objective

My current aspiration is to partake in intriguing and thrilling projects of great value. I intend to use my creativity, entrepreneurship and both technical and social skills for the development and delivery of such projects. I also look forward broadening and depthening technical knowledge that will allow me to provide faster and more accurate and sound solutions to problems; as well as tackling new challenges. I want to improve my soft skills –understand processes, organization, soft requirements and team dynamics –, since they are also key for the success of enterprises.

Professional/Personal Profile

- Analytical, methodical, reliable
- Curious, investigator, innovator
- Passionate, driven
- Well-mannered, affable, thoughtful

Work Experience

January 2014 – April 2014	**Intern Software Engineer**, *Google.com* – Development and extensions of testing frameworks for peformance, end-to-end and regression tests.
December 2013 – August 2012	**Java Programmer**, *Despegar.com* – Development of components integrating a larger application system. Development of web applications and utility frameworks.
July 2012 – March 2011	**Assistant Professor of *Algorithms and Data Structures I & II***, *Computer Science Major - Universidad de Buenos Aires*
January 2010 – January 2009	**Jr. Java Programmer (J2ME / Blackberry)**, *SenseByte* – Development of both stand-alone and client-server applications. Development of applications interfacing with non-standard hardware.

Education

Today–2008	**Computer Science Program (equivalent to Bachelor + M.S. degree)**, *Universidad de Buenos Aires - FCEyN*

English Studies - Advanced Level

2006	**FCE - First Certificate in English**, *AACI* – Grade A *University of Cambridge, ESOL Examinations*
2004	**CILE 3 - English Certificate**, *Facultad de Filosofía y Letras, UBA* – Score: 80/100

IT Profile

Programming Languages

Advanced	**C, Python, Java**
Working	**Groovy, C++, Intel x86 Assembler, Scala, LaTeX, Octave**
Learners	**Haskell, ActionScript 2.0, Ruby**

IT Achievements

Master's Thesis —in progress— on the evaluation of perceptual models for rhythms applied to tap dancing.

Research study in recommender systems for music.

Research study on algorithm optimization using SIMD (Intel's SEE instruction set).

Research study on heuristic methods to play a Zero-Sum board game.

Development of a basic monolithic kernel for x86 architecture based on UNIX ideas.

Experience on 3-stage software development starting on model specification on a theoretical level, moving to data structures definition in order to meet complexity restrictions, finishing with actual implementation of the defined code.

Transcript

Compuslory

○ Calculus	**9**
○ Algebra	**5**
○ Probability and Statistics	**10**
○ Algorithms and Data Structures I	**10**
○ Algorithms and Data Structures II	**10**
○ Algorithms and Data Structures III	**9**
○ Computer System Architecture I	**8**
○ Computer System Architecture II	**8**
○ Operating Systems	**10**
○ Numerical Methods	**10**
○ Software Engineering I	**7**
○ Software Engineering II	**9**
○ Systems Networks	**10**
○ Database Systems	**9**
○ Logic and Computability Theory	**9**
○ Language Theory	**10**
○ Programming Paradigms	**10**

Optional

○ Neural Networks	**9**
○ Introduction to Speech Technologies	**9**
○ Game Theory	**Final Exam Pending**
○ Operating Systems Development	**10**
○ Machine Learning	**Final Exam Pending**

Grade scale: 10

GPA	*9.05*
Expected graduation date	*April 2015*

Interests

Special interest in Computer Music –musicological analysis with a computer–and Cognitive Musicology – development of computer models for the cognitive processes of music.

Special interest in sound disciplines such as *speech processing* and *speech production*.

Special interest in *human behaviour modeling* through *machine learning* methods.

Special interest in low-level software development and *real-time systems*.

Other technical knowledge

Graphic and web design tools expertise: Adobe Photoshop, Adobe Flash

Familiar with both Microsoft and Linux OS Technologies (Windows, Ubuntu)