Martin Miguel

mmiguel.liaa.dc.uba.ar
mmiguel@dc.uba.ar
+541131816018
Buenos Aires, Argentina

EDUCATION

PhD in Computer Science

April 2016 - (Expected) May 2022 | University of Buenos Aires (UBA), Buenos Aires, Argentina
Advisor: Diego Fernandez Slezak - Applied Artificial Intelligence Lab (LIAA), Computer Science Department, University of Buenos Aires, Buenos Aires, Argentina; Computer Science Institute, National Scientific and Technical Research Council (CONICET)-UBA, Argentina
Co-advisor: Mariano Sigman - Neuroscience Laboratory, Torcuato Di Tella University, Buenos Aires, Argentina; Faculty of Language and Education, Nebrija University, Madrid, Spain

Professional Musician

April 2015 - (Paused) June 2017 | Contemporary Music School, Buenos Aires, Argentina

BS + MS in Computer Science

April 2008 - December 2015 | University of Buenos Aires, Buenos Aires, Argentina

RESEARCH

PUBLICATIONS

(In preparation) Grammar-based modeling of rhythmic perception

Martin A. Miguel, Mariano Sigman, Diego Fernandez Slezak
Paper describing a model of beat and meter expectation using grammar-based bayesian inference.

(In press) Modeling beat uncertainty as a 2D distribution of period and phase: a MIR task proposal

Martin A. Miguel, Diego Fernandez Slezak
Paper describing a methodology to model beat uncertainty considering period and phase from free tapping data and an evaluation criterion for MIR models. Proc. of the 22nd Int. Society for Music Information Retrieval Conf., Online, 2021.

(In press) Pulse clarity metrics developed from a deep learning beat tracking model

Nicolas Pironio, Diego Fernandez Slezak, Martin A. Miguel
Paper describing metrics of pulse clarity obtained from modifications to a neural-network based beat tracking model. Proc. of the 22nd Int. Society for Music Information Retrieval Conf., Online, 2021.

A simple and cheap setup for timing tapping responses synchronized to auditory stimuli

Martin A. Miguel, Pablo Riera, Diego Fernandez Slezak
Paper describing an experimental setup for capturing timing of tapping responses synchronized against auditory stimuli. The setup requires minimal programming skills and uses unexpensive equipment. Behav Res (2021). https://doi.org/10.3758/s13428-021-01653-y

From beat tracking to beat expectation: Cognitive-based beat tracking for capturing pulse clarity through time

Martin A. Miguel, Mariano Sigman, Diego Fernandez Slezak
Paper presenting a model of beat tracking adapted to produce a metric of pulse-clarity over time. (2020) PLoS ONE 15(11): e0242207. https://doi.org/10.1371/journal.pone.0242207

Mate Marote: a BigData platform for massive scale educational interventions.

Laouen Belloli, Martín A. Miguel, Andrea P. Goldin and Diego Fernández Slezak
Paper describing a web platform that hosts and collects data from educational games. 45-JAIIO, 2016, Buenos Aires, Argentina (ISSN: 2451-7569, p107-114).

CONFERENCES AND SCHOOLS

Modeling beat ambiguity in period and phase

Martin A. Miguel, Diego Fernandez Slezak
Poster presenting a methodology from gathering a beat distribution from free tapping data. Presented in the International Conference of Students of Systematic Musicology 21, Online and Aahrus, Denmark, 2021

A continuous model of pulse clarity: towards inspecting affect through expectations in time (Updated)
Martin A. Miguel, Mariano Sigman, Diego Fernandez Slezak
Poster describing an updated evaluation of our beat expectation model's measure of pulse clarity considering new data and constrating models. Presented in Neuromusic VII, Online and Aahrus, Denmark, 2021.

Evaluation of pulse clarity models on multiple datasets
Nicolas Pironio, Diego Fernandez Slezak, Martin A. Miguel
Poster presenting the evaluation of multiple pulse clarity models. Presented at the Rhythm Perception and Production Workshop 2021, Online and Oslo, Norway, 2021

Development and evaluation of pulse clarity metrics based of a deep learning beat tracking model
Nicolas Pironio, Diego Fernandez Slezak, Martin A. Miguel
Poster presenting metrics of pulse clarity obtained from modifications to a neural-network based beat tracking model. 16th International Conference on Music Perception and Cognition, Online 2021

Tapping to your own beat: experimental setup for exploring subjective tacti distribution and pulse clarity
Martin A. Miguel, Mariano Sigman, Diego Fernandez Slezak
Poster describing a novel experimental setup that extends on previous methods allowing exploration of subjective tacti on top of pulse clarity. Presented in SMPC 2019, New York, USA (DOI 10.17605/OSF.IO/7SQAW).

Tapping to your own beat: experimental setup for exploring subjective tacti distribution and pulse clarity
Martin A. Miguel, Mariano Sigman, Diego Fernandez Slezak
Poster describing a novel experimental setup that extends on previous methods allowing exploration of subjective tacti on top of pulse clarity. Presented in SMPC 2019, New York, USA (DOI 10.17605/OSF.IO/7SQAW).

A continuous model of pulse clarity: towards inspecting affect through expectations in time
Martin A. Miguel, Mariano Sigman, Diego Fernandez Slezak
Poster describing how our beat expectation model's measure of pulse clarity relates with pulse clarity extracted from empirical data. Presented in SMPC 2019, New York, USA (DOI 10.17605/OSF.IO/FGVB2).

Assistance to KHIPU 2019
University of the Republic, Montevideo, Uruguay

Assistance to the meeting of the Society of Music Perception and Cognition (SMPC 2019)
New York University, New York, USA

Assistance to Machine Learning Summer School (MLSS 2018)
Torcuato Di Tella University, Buenos Aires, Argentina

Assistance and volunteering at IJCAI 2015
Buenos Aires, Argentina

MENTORSHIPS
Mentor of undergraduate research internship: Exploration of music style transfer techniques based on VAEs latent spaces from symbolic music data
April 2021 - April 2022

Mentor of undergraduate research internship: Analysis of the behaviour of a beat tracking model to estimate pulse clarity
April 2020 - April 2021

SCHOLARSHIPS
PhD Grant | National Scientific and Technical Research Council (CONICET), Argentina
April 2016 - April 2021

TEACHING EXPERIENCE
TEACHING FELLOW | Universidad de Buenos Aires
April 2016 - Currently

TEACHING ASSISTANT | Universidad de Buenos Aires
March 2011 - July 2012

INDUSTRY EXPERIENCE

DATA SCIENTIST | Avenida.com
January 2016 - March 2016

SOFTWARE ENGINEER (ONLINE EDUCATIONAL GAMES) | MateMarote Project
April 2015 - December 2015

SOFTWARE ENGINEER INTERN | Google.com
January 2014 - April 2014

JAVA PROGRAMMER | Despegar.com
August 2012 - December 2013

JR. JAVA PROGRAMMER (J2ME / BLACKBERRY) | SenseByte
January 2009 - January 2010

COURSEWORK

GRADUATE

Calculus	9	Systems Networks	10
Algebra	5	Database Systems	9
Probability and Statistics	10	Logic and Computability Theory	9
Algorithms and Data Structures I	10	Language Theory	10
Algorithms and Data Structures II	10	Programming Paradigms	10
Algorithms and Data Structures III	9	Neural Networks	9
Computer System Architecture I	8	Introduction to Speech Technologies	9
Computer System Architecture II	8	Game Theory	Assisted Only
Operating Systems	10	Operating Systems Development	10
Numerical Methods	10	Machine Learning	10
Software Engineering I	7	Master's Thesis	10
Software Engineering II	9		

Graduate GPA	9.14
Grade Scale	10

DOCTORATE

Introduction to Data Science
Data Science in R
Bayesian Inference
Integration of Knowledge Bases
Signal Processing
Introduction to Computational Cognitive Neuroscience