

# Martin Miguel

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## MISSION STATEMENT

I have always been driven by curiosity and problem-solving. This drive took me to study Computer Science as a mean to gain the ability to ask good questions, find rigorous answers and carry them into real world solutions. Throughout my career I have developed both my applied and academic skills. I have worked in industry and acquired methodology and know-how and I am now working on my PhD degree, learning from research papers and performing experiments. Having curiosity as my main motor I have outed from strict computer science into empirical sciences, mainly neurosciences. I am interested in human perception and interaction with each other and the world. I am currently trying to add knowledge about how we process the world and create expectations about the future. More specifically, I am working on modeling and verifying said model on musical expectations, as it is a familiar semi-structured stimuli that makes a good first step in that direction.

## EDUCATION

### PHD IN COMPUTER SCIENCE

Expected April 2021 - April 2016 | UBA, Buenos Aires, Argentina

Advisor: Diego Fernandez Slezak - LIAA, DC, UBA, Buenos Aires, Argentina; ICC, CONICET-UBA, Argentina

Co-advisor: Mariano Sigman - LNI, UTDT, Buenos Aires, Argentina

### PROFESSIONAL MUSICIAN

Paused - April 2015 | Escuela de Música Contemporánea, Buenos Aires, Argentina

### BS + MS IN COMPUTER SCIENCE

December 2015 - April 2008 | UBA, Buenos Aires, Argentina

## EXPERIENCE

### ASSISTANT PROFESSOR | UNIVERSIDAD DE BUENOS AIRES

Currently - April 2016

Assistant Professor of *Algorithms and Data Structures II*.

### DATA SCIENTIST | AVENIDA.COM

March 2016 - January 2016

Improvement of search engine configuration, implementation of *search-as-you-type* features and assistance in team management.

### SOFTWARE ENGINEER | MATEMAROTE

December 2015 - April 2015

Development of java backend infrastructure and javascript videogames for a neuroscientifically based educational software.

### INTERN SOFTWARE ENGINEER | GOOGLE.COM

April 2014 - January 2014

Development and extensions of testing frameworks for performance, end-to-end and regression tests.

### JAVA PROGRAMMER | DESPEGAR.COM

December 2013 - August 2012

Development of components integrating a larger application system. Development of web applications and utility frameworks.

### ASSISTANT PROFESSOR | UNIVERSIDAD DE BUENOS AIRES

July 2012 - March 2011

Assistant Professor of *Algorithms and Data Structures I & II*.

### JR. JAVA PROGRAMMER (J2ME / BLACKBERRY) | SENSEBYTE

January 2010 - January 2009

Development of both stand-alone and client-server applications. Development of applications interfacing with non-standard hardware.

# RESEARCH

## PUBLICATIONS

**MATE MAROTE: A BIGDATA PLATFORM FOR MASSIVE SCALE EDUCATIONAL INTERVENTIONS.**

Martin A. Miguel

45-JAIIO, 2016, Buenos Aires, Argentina (ISSN: 2451-7569).

**INFERENCIA DE TACTUS CON FUNDAMENTOS ESTADISTICOS PARA TAP-DANCING.**

Martin A. Miguel

44-JAIIO, 2015, Rosario, Argentina (ISSN: 2451-7585).

**FROM BEAT TRACKING TO BEAT EXPECTATION**

Martin A. Miguel, Diego Fernandez Slezak, Mariano Sigman

(Under review) Music Cognition

**(IN PREPARATION) SIMPLE FRAMEWORK FOR RHYTHMIC ASYNCHRONY EXPERIMENTS IN PYTHON**

Martin A. Miguel, Diego Fernandez Slezak, Mariano Sigman

Paper describing an experimental setup for tapping used to measure synchronization of responses against the stimuli. The setup requires minimal not-specialized equipment. To be published in *Behavioural Research Methods*.

**(IN PREPARATION) BAYESIAN BEAT EXPECTATION AND UNCERTAINTY**

Martin A. Miguel, Diego Fernandez Slezak, Mariano Sigman

Paper describing evaluation of beat expectation model against experimentally captured responses of tapping. To be published in *Cognitive Science Journal*.

## CONFERENCES

**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 rhythmic complexity. Presented in SMPC 2019, New York, USA.

**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 rhythmic complexity related with complexity extracted from empirical data. Presented in SMPC 2019, New York, USA.

## SCHOLARSHIPS

**PHD GRANT | CONICET, ARGENTINA**

April 2021 - April 2016

# COURSEWORK

## GRADUATE

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
Neural Networks	9
Introduction to Speech Technologies	9
Game Theory	Assisted Only
Operating Systems Development	10
Machine Learning	10
Master's Thesis	10
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