

# Juan-Pablo Silva Peña

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## Education

### Universidad de Chile

MASTER OF SCIENCE IN COMPUTER SCIENCE

COMPUTER SCIENCE ENGINEERING

BACHELOR OF ENGINEERING SCIENCE IN COMPUTING (GPA 6.1/7.0.)

Santiago, Chile

2019 - present

2014 - present

2014 - 2018

### Conservatorio Nacional de la Música

CLASSICAL GUITAR INTERPRETATION

Santiago, Chile

2009 - 2012

- Intermediate level on musical interpretation.

## Experience

### WORK

#### Intelligent Software Construction Laboratory (ISCLab)

RESEARCH ASSISTANT

Santiago, Chile

2017 - present

- Research on applying machine learning to source code.

#### We Techs

DATA SCIENCE INTERN

Santiago, Chile

July 2018 - Dec 2018

- Was part of a team in charge of migrating the company's services from a relational schema to a ELK stack, then adding intelligence to the company's data. Specifically in charge of the Elasticsearch configuration and data analytics.
- Data processing and apply machine learning algorithms to improve company's control protocols.

#### Inria Chile

RESEARCH INTERN

Santiago, Chile

July 2017 - July 2017

- Compile a bibliography related to automatic consistent narrative generation, and adapt and implement several techniques of narrative generation to the context of an educational video game.
- Design of a proposal for the integration of auto generated ethical and moral conflicts, through related narratives, to the video game.

#### NIC Chile Research Labs

INTERN

Santiago, Chile

December 2016 - January 2017

- Install and configure HTC (High-throughput computing) software to automate tasks inside the laboratory.
- Evaluate the installed software on several environments inside the laboratory to quantify the positive impact of using it.

### TEACHING

#### CC5206 - Introduction to Data mining

HEAD TEACHING ASSISTANT

University of Chile, Chile

Spring 2019 - present (2 semesters)

- Coordination and management of Teaching Assistants and course activities.
- Laboratory activity preparation.
- Course covers Linear Models, Decision Trees, Clustering, Model Evaluation and standard Data Mining Pipelines.

#### CC6204 - Deep Learning

TEACHING ASSISTANT

University of Chile, Chile

Spring 2019 (1 semester)

- Office hours to assist students with their course projects.
- Grading of homeworks and projects.
- Course covers Basic Tensorial Calculus, Feedforward, Recurrent and Convolutional Neural Networks, Activation Functions, Losses and Theory.

#### CC3002 - Design and Programming Methodologies

HEAD TEACHING ASSISTANT

University of Chile, Chile

Fall 2017 - Spring 2019 (6 semesters)

- Recitation classes (theoretical and practical) and design of homework material.
- Management of teaching aides for test, exam and homework grading.
- Course covers Object Oriented Programming and Design Patterns, as well as design guidelines and Intermediate Java programming.

## CC5114 - Neural Networks and Genetic Programming

University of Chile, Chile

### TEACHING ASSISTANT

Spring 2018, 2019 (2 semesters)

- Office hours to assist students with their course projects.
- Management of teaching aides for homework grading.
- Course covers introductory Neural Networks, then changes to Evolutionary Algorithms, Neuroevolution (like NEAT), Genetic Algorithms and Genetic Programming.

## CC66M - Evolutionary algorithms

University of Chile, Chile

### TEACHING ASSISTANT

Spring 2019 (1 semester)

- Homework design and grading.
- Assist students in the laboratory sessions.
- Course covers introductory Evolutionary and Genetic Algorithms. Also has an introduction to Reinforcement Learning using Q-learning.

## Others

University of Chile, Chile

### TEACHING AIDE FOR CC3201 - DATABASES

Fall 2019

- Course covers Database Theory, SQL, transactions, ACID and graph queries (SPARQL).

### TEACHING AIDE FOR CC3301 - SYSTEMS PROGRAMMING

Fall 2017

- Course covers introductory C, bits, pointers, threads, and unix (sockets, signals, processes).

## Publications

Pablo Barceló, Egor V. Kostylev, Mikael Monet, Jorge Pérez, Juan Reutter, and **Juan-Pablo Silva**. “The Logical Expressiveness of Graph Neural Networks”. In: *International Conference on Learning Representations (ICLR)*. 2020. URL: <https://openreview.net/forum?id=r1LZ7AEKvB>

Mikaël Monet, Jorge Pérez, Juan Reutter, Egor Kostylev, Pablo Barceló, and **Juan-Pablo Silva**. “Logical Expressiveness of Graph Neural Networks”. In: *International Conference on Neural Information Processing Systems (NeurIPS)*. *Graph Representation Learning Workshop*. 2019. URL: <https://grlearning.github.io/papers/92.pdf>

## Other activities

### COMMITTEES

#### Academic Evaluation Committee, DCC University of Chile

Santiago, Chile

##### MEMBER OF THE COMMITTEE

2018 - present

- Approval and validation of course programs to be imparted on a department and faculty level. These programs are then used to accredit the degree.
- Discussion on techniques and protocols to be used on the wellness of the students, teaching aides and teaching assistants in the department.

### WORKSHOPS

#### Artificial Intelligence Workshop - OpenBeauchef

Santiago, Chile

##### CO-INSTRUCTOR

May, Aug 2019 (2 times)

- Design of the practical and interactive activities.
- Theory on neural networks and introductory tensorial calculus.

## Skills

### LANGUAGE SKILLS

**Spanish:** Native    **English:** Fluent    **Japanese:** Fluent/Business (JLPT N2)

### TECHNICAL

Languages:	<b>Python:</b> Fluent/Advanced	<b>Java:</b> Intermediate		
Data Packages:	<b>Numpy:</b> Intermediate	<b>Scikit Learn:</b> Intermediate	<b>Pandas:</b> Intermediate	<b>Pytorch:</b> Intermediate
Technologies:	<b>Django:</b> Intermediate	<b>Flask:</b> Beginner	<b>Git:</b> Intermediate	<b>Linux:</b> Intermediate

## Awards

**Outstanding Teaching Assistant**, Department of Computer Science, FCFM, Universidad de Chile

2019

**Outstanding Student**, FCFM, Universidad de Chile

2016, 2017, 2018