Manuel Perez Carrasco

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EDUCATION

University of Concepcion
Concepcion, Chile

MSc. Computer Science. GPA 6.1/7.0
Mar. 2017 – Oct 2019

B.S Industrial Engineering. GPA 5.9/7.0
Mar. 2013 – Sep. 2018

- Graduated with distinction in MSc. degree and graduated with maximum distinction in B.S. degree.
- Author of thesis called "*Semi-supervised adversarial variational domain adaptation for image classification*". Grade 7.0/7.0
- Author of undergraduate honor research thesis called "*Attributes transfer in deep neural networks and their application to astronomical images*". Grade 7.0/7.0
- Honors and Awards:
  * Best student paper award, Astroinformatics 2019 conference, Caltech.
  * Undergraduate honor research thesis published in Publications of the Astronomical Society of the Pacific.
  * Recipient of fully-funded scholarship for MSc. degree (Mar. 2017).

RESEARCH AND PROFESIONAL EXPERIENCE

Research Assistant
Cambridge, MA, USA

Institute for Applied Computational Sciences (IACS), Harvard University
Sep. 2020 – Present

- Research focused on learning of disentangled representations for semi-supervised domain adaptation.
- Working remotely under professor Pavlos Protopapas, Scientific Program Director at IACS.

Machine Learning Engineer
Concepcion, Chile

Unidad de Data Science at University of Concepcion
Jul. 2019 – Present

- **Automatic Learning for the Rapid Classification of Events (ALeRCE)**: In charged of design and implementation of a novelty detection algorithm for astronomical light curves coming from the Zwicky Transient Facility (ZTF) data stream. Project funded by the Millennium Institute of Astrophysics.
- **Arauco Company**: In charged of design and implementation of labeling, training and prediction algorithm to count, detect, and segment trees using georeferenced RGB images via cloud-based infraestructure.

Research Assistant
Concepcion, Chile

Biomedical Laboratory at University of Concepcion
Jan 2020 – Sep. 2020

- In charged of design and implementation of a real-time drowsiness detection algorithm using EEG signals. This project was funded by the Chilean government *Fund for the Promotion of Scientific and Technological Development* (FONDEF).

Research Scholar
Cambridge, MA, USA

Institute for Applied Computational Sciences (IACS) at Harvard University
Jan 2019 – Jun. 2019

- Developed my master's thesis. Research focused on semi-supervised domain adaptation algorithms for image classification.
- Worked under professor Pavlos Protopapas.
- Recipient of IACS financial aid to develop my research (stipend and flight tickets).

Internship
Concepcion, Chile

Coca-Cola Embonor S.A
Jan. 2018 – Feb. 2018

- Designed and implemented a forecasting software for sales and demand estimation.

Teaching Experience

University of Concepcion   Concepcion, Chile

Lecturer of Advanced Topics in Machine Learning at the Industrial Engineering Department.   *Apr. 2019 – Sept. 2020*
- Co-taught Advanced Topics in Machine Learning, an elective course for graduate and undergraduate students of Engineering. Teached with professor Rodrigo de la Fuente.
    * Co-Designed curriculum, lectures, assessments, laboratories, and homeworks for an audience of 28 students.
    * Co-graded assessments, homeworks and projects.

Lecturer of Introduction to Machine Learning at the Industrial Engineering Department.   *Jul. 2019 – Dec. 2019*
- Co-taught Introduction to Machine Learning, an elective course for undergraduate students of Engineering.
    * Co-Designed curriculum, lectures, assessments, laboratories, and homeworks for an audience of 21 students.
    * Co-graded assessments, homeworks and projects.

Teaching Assistant at the Industrial Engineering Department.   *Mar. 2018 – Dec. 2018*
- Teaching assistant of Systems Modeling and Machine Learning for Bussines Intelligence at the Industrial Engineering Department.
    * In charged of recitation and laboratories for both courses.
    * Worked under professor Rodrigo de la Fuente and Pablo Catalan.

Harvard University   Cambridge, MA, USA

Teaching Fellow of CS109b: Advanced Topics in Data Science at IACS.   *Feb. 2019 – May 2019*
- Served as teaching fellow for Advanced Topics in Data Science, a mandatory course for the master in Data Science and Computer Science PhD Secondary Field in Data Science at Harvard University
- In charged of grading, office-hours, and guiding students in their applied machine learning projects.
- Worked under professor Pavlos Protopapas.

Publications

M. Pérez-Carrasco, G. Cabrera-Vives, P. Protopapas, N. Astorga, and M. Belhaj. "*Semi-supervised Domain Adaptation for Image Classification Through Generative Models*". In preparation.

B. Karelovic, R. Molina, **M. Pérez-Carrasco**, G. Cabrera-Vives, R. Saavedra-Passache, P. Cerulo. "*Detection and Segmentation of Tree Plantations in High Spatial Resolution RGB Imagery Obtained from Unmanned Aerial Vehicle*". In preparation.

F. Förster, G. Cabrera-Vives, E. Castillo-Navarrete, P. A. Estevéz, P. Sánchez-Sáez, et al. "*The Automatic Learning for the Rapid Classification of Events (ALeRCE) Alert Broker*". Manuscript submitted to American Astronomical Society Journals, 2020.

M. Pérez-Carrasco, G. Cabrera-Vives, M. Martinez-Marín , P. Cerulo, R. Demarco, P. Protopapas, J. Godoy, and M. Huertas-Company. "*Multiband galaxy morphologies for CLASH: a convolutional neural network transferred from CANDELS*", Manuscript published in Publications of the Astronomical Society of the Pacific, 2019.

Conferences and Workshops

Jornadas Chilenas de la Computación 2019. University of Concepción, Concepción, Chile.

Astroinformatics 2019. **Expositor. Best student paper award**. Caltech, Pasadena, CA, USA.

6th CMM Pucón Symposium 2019. Data Science for Frontier Astronomy, Biology, Medicine and Climate. Puerto Varas, Chile.

ComputeFest 2019. **Trainer**. Harvard University, Boston, MA, USA.

Big Data Astronomy Workshop 2018. **Expositor**. University of Concepción, Concepción, Chile.

5th CMM Pucón Symposium 2017. Data Science for Frontier Astronomy, Biology and Medicine. Puerto Varas, Chile.

Technical Skills

Languages: Spanish (native speaker), English.
O.S: GNU/Linux, macOS.
Tools: Git, Google Cloud Platform, VS Code, Amazon Web Services, LaTeX
Libraries: Pytorch, Keras, Tensorflow, scikit-learn, NumPy, Matplotlib, pandas.