

# Nestor Cabello

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## EDUCATION

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### The University of Melbourne

Melbourne, Australia

*Doctor of Philosophy in Computer Science*

*Dec 2017 – Dec 2022*

*Thesis: “[Scalable and Explainable Time Series Classification](#)”*

*Supervisors: [Prof Lars Kulik](#) and [Assoc Prof Jianzhong Qi](#)*

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### The University of Melbourne

Melbourne, Australia

*Master in Computer Science (with Distinction)*

*Feb 2015 – Nov 2016*

*Thesis: “[Automatic caloric expenditure estimation with smartphone’s built-in sensors](#)”*

*Supervisors: [Prof Lars Kulik](#) and [Dr Masud Moshtaghi](#)*

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### Escuela Superior Politécnica del Litoral (ESPOL)

Guayaquil, Ecuador

*Bachelor in Electronics and Telecommunications*

*Mar 2004 – Dec 2008*

## SKILLS

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**Programming Languages:** Python, Java, C#, MATLAB, R

**Web Technologies:** PHP, JavaScript

**Mobile Development:** Android, React Native

**Machine Learning Libraries:** Scikit-Learn, PyTorch, Keras, TensorFlow, Sktime

**Data Manipulation and Visualisation:** NumPy, Pandas, Matplotlib, Seaborn

**Databases:** SQL, MySQL, PostgreSQL, SQLite, InfluxDB

**Cloud Computing:** AWS (Amazon EC2 and Amazon S3), Melbourne Research Cloud

**High Performance Computing:** Spartan

## WORK EXPERIENCE

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### The University of Melbourne

Melbourne, Australia

*AI Research Fellow | Reporting to [Prof Lars Kulik](#)*

*Jan 2023 – Present*

- Researcher for workstream 3 of the [Music Attuned Technology - Care via eHealth \(MATCH\)](#) project.
- Development of machine learning models to automate the detection of agitation symptoms related to dementia.
- Built a data pipeline to extract and preprocess sensor-based physiological data from Empatica’s EmbracePlus medical wearable.
- Researched several noise reduction techniques and integrated [DeepFilterNet](#) models into our data pipeline to remove/reduce noise from the collected audio data.
- Developed an [Android/iOS app](#) for data collection of agitation symptoms in patients living with dementia.
- Supervised the development of the MATCH app, which integrates the Spotify API to provide music recommendations.
- Supervisor of 2 PhD students.
- Marker for Master of Information Technology theses during Semester 2, 2023 and Semester 1, 2024.
- Lecturer for Design of Algorithms (COMP20007) for Semester 1, 2024. Delivered lectures on String Matching, Dynamic Programming, Sorting Algorithms, Binary Search Trees, Hashing, and Data Compression.
- Participated in the hiring process for software engineering positions for the MATCH Project, which involved preparing take-home tasks and conducting interviews.
- Technical representative of the MATCH Safety Committee and MATCH Capacity Building Committee.

### RMIT University

Melbourne, Australia

*Academic Tutor (Casual)*

*Jul 2023 – Present*

- Tutor, Lab Demonstrator, and Marker for Algorithms and Analysis (COSC2123/COSC1285)
  - \* Semester 1, 2025 | Reporting to [Dr Elham Naghizade](#).
  - \* Semester 2, 2024 | Reported to [Dr Elham Naghizade](#).

\* Semester 1, 2024 | Reported to [Assoc Prof Jeffrey Chan](#).

\* Semester 2, 2023 | Reported to [Assoc Prof Andy Song](#).

- Explain key algorithmic design paradigms: brute force, divide and conquer, decrease and conquer, transform and conquer, greedy, dynamic programming and iterative improvement.
- Explain key data structures: trees, lists, stacks, queues, hash tables and graph representations.
- Theoretically compare and analyse the time complexities of algorithms and data structures.

## **RMIT University**

Melbourne, Australia

*Research Assistant | Reported to [Dr Elham Naghizade](#)*

*Nov 2022 – Jan 2023*

- Developed [scripts](#) for web scraping ABC's Fact Check website in order to identify news with a potential tweet/twitter-related content.
- Developed scripts to utilise the Twitter API for finding the source (i.e., original tweet) for each tweet extracted from "The Claim" section on ABC's Fact Check website.
- Developed scripts to utilise the Twitter API for generating cascades for particular tweets related to anti-feminist political discourse in Iran. Explored the ChatGPT API to automate the identification of sexism in tweets.
- Delivered a talk titled "ChatGPT as a scripting tool for researchers" for the CIDDA Human Information REtrieval (CHIRE) group at RMIT. I explained how to use ChatGPT for data preprocessing and data modelling purposes.

## **Rosetta Analytics**

Melbourne, Australia

*Senior Software Engineer | Reported to [Dr Anthony Quattrone](#)*

*Nov 2021 – Nov 2022*

- Fulfilled the requirements of current and prospective clients.
- Provided support for the Regulatory Information Notice (RIN) clients.
- Implemented new features for RIN portals using PHP, JavaScript and MySQL.
- Developed and supported mapping portals using JavaScript, Google Maps and GIS technologies.
- Automated and optimised several processes for writing, reading, and updating databases.
- Managed Amazon EC2 servers.

## **RMIT University**

Melbourne, Australia

*Academic Mentor | Reported to [Prof Lawrence Cavedon](#)*

*Aug 2021 – Nov 2021*

- Mentored machine learning projects for Masters students working with industry partners (Data Science Postgraduate Program).
- Provided technical advice and evaluated reports.

## **Universidad de Guayaquil/ESPOL**

Guayaquil, Ecuador

*Lecturer*

*May 2017 – Dec 2017*

- Lectured in several courses: Operating Systems, Object-Oriented Software Engineering, Compilers, Data Structures, Databases, Fundamentals of Programming (Python) and Object-Oriented Programming (Java).
- Directed a community-focused project related to the development of computational thinking in children through the use of programmable technologies.

## **Carro Seguro S.A.**

Guayaquil, Ecuador

*Software Developer*

*Feb 2013 – Feb 2015*

- Supported and developed new features for the company's web platforms using ASP.NET and SQL technologies.
- Developed [Android applications](#) with REST and SOAP web services.
- Implemented an HTTP Servlet for image transfer.
- Configured Linux servers.

## **Carro Seguro S.A.**

Guayaquil, Ecuador

*Technical Support Engineer*

*Jun 2009 – Feb 2013*

- Supervised the correct operation of 130 monitoring towers all over the country.
- Tested, configured, and installed GPRS equipment.
- Repaired Motorola radios and provided maintenance.
- Configured VHF and UHF radios.

## **PUBLICATIONS**

["Fast and Accurate Time Series Classification Through Supervised Interval Search"](#): Presented in the 2020 IEEE International Conference on Data Mining (ICDM, acceptance rate: 9.8%), pages 948-953.

["Fast, Accurate and Explainable Time Series Classification Through Randomization"](#): Published in Data Mining and Knowledge Discovery (DMKD, Q1 journal), Volume 38, pages 748-811, (2024).

## PROJECTS

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### *FitnessMate*

- Fitness-tracking mobile application able to detect automatically 5 types of activities (i.e., Human Activity Recognition HAR): walking, jogging, cycling and walking upstairs/downstairs providing the calories consumed on each exercise. **Technologies:** Android, AndroidLibSVM, SQLite.

### *Mutual Exclusion Tetris*

- Multiplayer adaptation of Tetris game by using Mutual Exclusion algorithms and a Peer to Peer (P2P) network. **Technologies:** Android, Node.js.

### *Instagram App*

- Instagram-like Android application with some new functionalities that use the Instagram API and Bluetooth technology. **Technologies:** Android, Instagram API.