Nestor Cabello

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EDUCATION

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*

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*

Escuela Superior Politécnica del Litoral (ESPOL) — Guayaquil, Ecuador
Bachelor in Electronics and Telecommunications — *Mar 2004 – Dec 2008*

SKILLS

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

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.
- 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

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.