

# María Alfaro Contreras

COMPUTER SCIENCE PHD STUDENT | FPU PREDOCTORAL RESEARCHER

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## Education

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### University of Alicante

#### PhD in Computer Science

Oct. 2020 – Present

- Spanish Ministry of Universities FPU Grant (FPU19/04957)
- Research line: (Multimodal) Audio and Image Music Transcription

### University of Alicante

#### MSc in Telecommunication Engineering, 9.54/10

Sept. 2018 – July 2020

- 7 distinctions, one of them in the end-of-master project
- Best academic record of my class

### University of Alicante

#### Degree in Sound and Image in Telecommunication Engineering, 9.11/10

Sept. 2014 – July 2018

- 21 distinctions, one of them in the end-of-degree project
- Best academic record of my class

## Experience

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### Department of Software and Computing Systems, University of Alicante

#### FPU Predoctoral Researcher

Oct. 2020 – Present

- Teaching work experience  
Digital Sound Synthesis in Degree in Sound and Image in Telecommunication Engineering  
Courses 2021-2022, 2020-2021
- Supervision of end-of-degree projects

#### Research Initiation Grant

Jan. 2019 – July 2020

#### Collaboration Grant

Nov. 2017 – June 2018

#### Student Intern in the Pattern Recognition and Artificial Intelligence Group

Sept. 2017 – Dec. 2017

### ELLIS Doctoral Symposium 2022

#### Part of the Local Organizing Committee

September 2022

- Excursions
- Attention to the attendees
- Facilities and materials preparation

### Music Encoding Conference 2021

#### Part of the Local Organizing Committee

July 2021

- Facilities and materials preparation
- Attention to the attendees
- Technical and scientific supervision

## Skills

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### Programming

Python, LaTeX, C, C++, MATLAB

### Languages

Spanish (mother tongue), English (C1 Advance CAE), French (notions)

## Awards

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Extraordinary prize of master for best academic record	Nov. 2020
Second place in the engineering and architecture area of the XVIII National “Certamen Universitario Arquímedes” awards	Nov. 2019
Extraordinary prize of degree in the “Capitanía General de Valencia” awards	June 2019
Best end-of-degree project in the “Cátedra Santander-UA de Transformación Digital” awards	June 2019
Best academic record of the Polytechnic School in the University of Alicante in the “Consejo Social” awards	Apr. 2019
Third place in the sound and image engineering category of the “Futuro de las Telecomunicaciones” COITT awards	Dec. 2018
“Caja de Ingenieros” award to the best tech academic record of the Polytechnic School in the University of Alicante	Nov. 2018
Extraordinary prize of degree for best academic record	Nov. 2018

## Publications

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### Conferences and journals

- Alfaro-Contreras, M.**, Ríos-Vila, A., Valero-Mas, J.J., Calvo-Zaragoza, J., 2023. Few-Shot Symbol Classification via Self-Supervised Learning and Nearest Neighbor. *Pattern Recognition Letters*, 167, 1-8.
- Alfaro-Contreras, M.**, Valero-Mas, J.J., Iñesta, J.M., Calvo-Zaragoza, J., 2023. Late multimodal fusion for image and audio music transcription. *Expert Systems with Applications*, 216, 119491.
- Alfaro-Contreras, M.**, Valero-Mas, J.J., Iñesta, J.M., Calvo-Zaragoza, J., 2022. Insights into transfer learning between image and audio music transcription, in: *Sound and Music Computing Conference, SMC*, Saint-Etienne, France. pp. 292-298.
- Alfaro-Contreras, M.**, Ríos-Vila, A., Valero-Mas, J.J., Iñesta, J.M., Calvo-Zaragoza, J., 2022. Decoupling music notation to improve end-to-end Optical Music Recognition. *Pattern Recognition Letters*, 158, 157-163.
- Alfaro-Contreras, M.**, Rizo, D., Iñesta, J.M., Calvo-Zaragoza, J., 2021. OMR-assisted transcription: a case study with early prints, in: *International Society for Music Information Retrieval Conference, ISMIR*, Online. pp. 35-41.
- Mas-Candela, E., **Alfaro-Contreras, M.**, Calvo-Zaragoza, J., 2021. Sequential Next-Symbol Prediction for Optical Music Recognition, in: *Internal Conference on Document Analysis and Recognition, ICDAR*, Lausanne, Switzerland. pp. 708-722.
- Alfaro-Contreras, M.**, Valero-Mas, J.J., 2021. Exploiting the Two-Dimensional Nature of Agnostic Music Notation for Neural Optical Music Recognition. *Applied Sciences* 11, 3621.
- Alfaro-Contreras, M.**, Calvo-Zaragoza, J., Iñesta, J.M., 2019. Approaching end-to-end optical music recognition for homophonic scores, in: *Iberian Conference on Pattern Recognition and Image Analysis, IbPRIA*, Madrid, Spain. pp. 147-158.
- Alfaro-Contreras, M.**, Calvo-Zaragoza, J., Iñesta, J.M., Rizo, D., 2019. On the Impact of the Music Encoding for Optical Music Recognition, in: *Music Encoding Conference*, Vienna, Austria.

## Workshops and demonstrations

**Alfaro-Contreras, M.**, Valero-Mas, J.J., Calvo-Zaragoza, J., 2022. Multimodal strategies for image and audio music transcription: A comparative study, in: International Workshop on Pattern Recognition for Cultural Heritage, PatReCH, Montréal, Canadá.

Ríos-Vila, A., **Alfaro-Contreras, M.**, Valero-Mas, J.J., Calvo-Zaragoza, J., 2022. Few-Shot Symbol Classification via Self-Supervised Learning and Nearest Neighbor, in: International Workshop on Pattern Recognition for Cultural Heritage, PatReCH, Montréal, Canadá.

De la Fuente, C., Valero-Mas, J.J., Castellanos, F.J., Calvo-Zaragoza, J., **Alfaro-Contreras, M.**, Iñesta, J.M., 2021. Multimodal Audio and Image Music Transcription. Late-breaking demo at the 22nd International Society for Music Information Retrieval Conference, ISMIR, Online.

Mas-Candela, E., **Alfaro-Contreras, M.**, Calvo-Zaragoza, J., 2021. Sequential Next-Symbol Prediction for Optical Music Recognition, in: International Workshop on Reading Music Systems, WoRMS, Alicante, Spain. pp 33-37.

**Alfaro-Contreras, M.**, Valero-Mas, J.J., Iñesta, J.M., 2021. Neural architectures for exploiting the components of Agnostic Music Notation in Optical Music Recognition, in: International Workshop on Reading Music Systems, WoRMS, Alicante, Spain. pp 33-37.