

Aleix Seguí Ugalde

Zürich, Switzerland | Barcelona, Spain | aleixseguí.dev | Scholar | LinkedIn

Education

University of Oxford Oxford, United Kingdom
DPhil in Engineering Science *Oct 2025 - Now*

- Funded by the *la Caixa* Postgraduate Fellowship Abroad

ETH Zurich Zürich, Switzerland
MSc in Information Technology and Electrical Engineering *2023 - 2025*

- Relevant Courses: Distributed Computing, Deep Learning, Computer Architecture

Universitat Politècnica de Catalunya Barcelona, Spain
BSc in Data Science and Engineering *2018 - 2023*

- Scholarship from the Interdisciplinary Higher Education Center (CFIS-UPC)
- Relevant Courses: Deep Learning, Audiovisual Processing, Mathematical Optimization

Universitat Politècnica de Catalunya Barcelona, Spain
BSc in Engineering Physics *2018 - 2023*

- Scholarship from the Interdisciplinary Higher Education Center (CFIS-UPC)
- Relevant Courses: Differential Equations, Signal Theory, Numerical Methods

Work Experience

Netflix Los Gatos, CA, United States
Research Intern *Sep 2022 - May 2023*

- Developed image and video coding algorithms with improved compression and performance
- Co-authored two contributions to standards for *AOMedia* in video codec development

Qualcomm Barcelona, Spain (remote)
Engineering Intern *Jun 2022 - Sep 2022*

- Implemented Graph Neural Networks to predict the performance of 5G communication networks

Hewlett-Packard Barcelona, Spain
Engineering Intern *Jun 2019 - Sep 2019*

- Developed software to assist research on improving image quality in large format printers

Research Experience

Institut de Ciències del Mar Barcelona, Spain
Engineering Research Collaboration *2024 - now*

- Designed compression algorithms for Fibre Optic Sensing data, enabling further research

ETH Zurich Zürich, Switzerland
High-level Synthesis Compiler Development *2023 - 2024*

- Developed components for the open-source High-Level Synthesis compiler *Dynatomic*

Institut de Ciències del Mar Barcelona, Spain
Software Engineering Collaboration *2020 - 2023*

- Implemented a Python module (with C extensions) for ARMA filtering of 3D signals

- Software on GitHub, enabling multiple publications

Institut Catala d'Oncologia
Machine Learning - Course Project

Barcelona, Spain
Feb 2021 - May 2021

- Designed an indoor positioning model in a 6-floor hospital based on Bluetooth beacons

Arcvi Big Data Agency
Data Science Intern

Barcelona, Spain
Jun 2021 - Aug 2021

- Trained an image segmentation algorithm to identify lungs in torso radiographs

Academic Activities

ETH Zurich
Research Assistant

Zurich, Switzerland
Feb 2024 - Jul 2024

- Contributed to development of a High-Level Synthesis compiler with Prof. Lana Josipovic

Universitat Politecnica de Catalunya
Undergraduate Teaching Assistant and Mentor

Barcelona, Spain
Sep 2021 - May 2022

- Led a 4h/week course on Math and Engineering for 9 first-year students

Universitat Politecnica de Catalunya
Undergraduate Teaching Assistant

Barcelona, Spain
Feb 2021 - May 2021

- Assisted with teaching and labs for Algorithmics and Programming

Massachusetts Institute of Technology
Summer Science Program

Cambridge, MA, USA
Summer 2017

- Studied astrophysics in a research science program

Publications

- **A. Seguí**, A. Ugalde, A. Fichtner, S. Ventosa, J.R. Morros. "DASPack: Controlled Data Compression for Distributed Acoustic Sensing", *Geophysical Journal International*, in press. arXiv:2507.16390
- T. Rodriguez, **A. Seguí**, A. Ugalde, M. Cubas, H. Latorre, S. Ventosa, T. Monfret. "Automatic Identification of High-quality Channels in Distributed Acoustic Sensing through Implementation of a Channel Quality Index", *Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, July 2025. 10.1109/JS-TARS.2025.3593330
- **A. Seguí**, A. Ugalde, J. Egozcue. "hvarma: Autoregressive Moving Average Model of Microtremor H/V spectral ratio", *Software Impacts*, March 2025. 10.1016/j.simpa.2025.100745
- A. Ugalde, **A. Seguí**, M. Ortuzar, JM Ortuzar, C. Ranero. "Subfluvial Tunnel Layout Design: Mapping Recent Sediment Fill in Bilbao Estuary Using H/V Spectral Ratio", *Engineering Geology*, December 2023. 10.1016/j.enggeo.2023.107338
- **A. Seguí**, J.J. Curto, V. de Paula, et al. "Temporal Variation and Asymmetry of Sunspot and Solar Plage Types from 1930 to 1936", *Advances in Space Research*. Volume 63, Issue 11, 1 June 2019, Pages 3738-3748. 10.1016/j.asr.2019.02.018
- O. Gasulla, M. J. Ledesma, L. Borrell, ..., **A. Seguí**, et al. "Enhancing Physicians' Radiology Diagnostics of COVID 19's Effects on Lung Health by Leveraging AI", *Frontiers in Bioengineering and Biotechnology*, April 2023. 10.3389/fbioe.2023.1010679

Conference Presentations

- **A. Seguí**, A. Fichtner, A. Ugalde, S. Ventosa, J. R. Morros. "Controlled lossy compression of distributed acoustic sensing data for large-scale monitoring". IAGA/IASPEI Joint Scientific Meeting 2025, September 2025, Lisbon (Portugal). Poster presentation.

- M. Balsells, **A. Seguí**, A. Zolkowski. "*Scaling Multi-Agent Reinforcement Learning through Mean Field Games and Incremental Learning*". 35th AAAI Conference on Artificial Intelligence, March 2025, Philadelphia (USA). Poster Presentation. [Link](#)
- **A. Seguí**, A. Ugalde, S. Ventosa. "*Inter-channel Lossless Data Compression for Distributed Acoustic Sensing*". *Fibre Optic Sensing in Geosciences*, May 2024, Catania (Italy). Oral presentation. [10.5194/egusphere-gc12-fibreoptic-5](#)
- **A. Seguí**, A. Ugalde, S. Ventosa, J.R. Morros. "*Lossless and Lossy Compression for Distributed Acoustic Sensing Using Inter-channel Predictions*". *Photonic Seismology: Lighting the Way Forward*, October 2024, Vancouver (Canada). Poster presentation.

Patents

- Sole inventor: WO/2024/197088 "*Techniques for Performing Directional Intra Prediction When Encoding Media Content*", assigned to Netflix
- Co-author of US 2024/0372787 "*Systems and Methods for Using Bottleneck Structures to Improve Performance of ML-Based Modeling*", assigned to Qualcomm

Other Achievements

- Admitted to the DPhil in Engineering Science (PhD) program at the University of Oxford, funded by the *la Caixa* Postgraduate Fellowship Abroad
- Co-authored two technical contributions to the AV2 codec standard during internship at Netflix
- Winner of the 2021 *Datathon* (UPC) on housing prices in Barcelona

Languages

- **Catalan:** Native
- **Spanish:** Native
- **English:** C1, Cambridge English – Duolingo English Test
- **French:** B2
- **German:** A2