



# Serkan Sulun, PhD

Machine learning scientist

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❖ [Google Scholar](#)

## PUBLICATIONS

**Sulun, S.**, Viana, P., & Davies, M. E. P. (2025). Video Soundtrack Generation by Aligning Emotions and Temporal Boundaries. (in review, IEEE Transactions on Multimedia). [arXiv:2502.10154](https://arxiv.org/abs/2502.10154)

**Sulun, S.**, Viana, P., & Davies, M. E. P. (2024). VEMOCLAP - A video emotion classification web application. 2024 IEEE International Symposium on Multimedia (ISM), 137–140. [DOI](#) | [arXiv](https://arxiv.org/abs/2404.08001) | [demo](#)

**Sulun, S.**, Viana, P., & Davies, M. E. P. (2024). Movie trailer genre classification using multimodal pretrained features. Expert Systems with Applications, 258, 125209. [DOI](#) | [arXiv](https://arxiv.org/abs/2401.07001) | [code](#)

**Sulun, S.**, Oliveira, P., & Viana, P. (2023). Emotion4MIDI: A Lyrics-based Emotion-Labeled Symbolic Music Dataset. EPIA 2023. Lecture Notes in Computer Science, vol 14116. Springer. [DOI](#) | [arXiv](https://arxiv.org/abs/2306.07001) | [code](#)

**Sulun, S.**, Davies, M. E. P., & Viana, P. (2022). Symbolic Music Generation Conditioned on Continuous-Valued Emotions. IEEE Access, 10, 44617–44626. [DOI](#) | [arXiv](https://arxiv.org/abs/2201.05001) | [code](#)

**Sulun, S.**, & Tekalp, A. M. (2021). Can learned frame prediction compete with block motion compensation for video coding? Signal, Image and Video Processing, 15(2), 401–410. [DOI](#) | [arXiv](https://arxiv.org/abs/2006.08001) | [code](#)

**Sulun, S.**, & Davies, M. E. P. (2020). On filter generalization for music bandwidth extension using deep neural networks. IEEE Journal of Selected Topics in Signal Processing, 15(1), 132–142. [DOI](#) | [arXiv](https://arxiv.org/abs/1906.08001) | [code](#)

**Sulun, S.** (2018). Deep Learned Frame Prediction for Video Compression, Master's Thesis. [arXiv](https://arxiv.org/abs/1801.00001) | [code](#)

## WORK EXPERIENCE

### INESC TEC, Researcher

- Automatic video-based symbolic music generation
- Finetuning vision language models for industrial safety
- Audio bandwidth enhancement

Mar. 2019 – Present

Porto, Portugal

### University of Porto, Lecturer

- Lecturer for the course Programming with Python

Sep. 2023 – Present

Porto, Portugal

### Catolica Porto Business School, Lecturer

- Lecturer for the course Python for Business Analytics

Mar. 2024 – Present

Porto, Portugal

### Koc University, Research assistant

- Video compression and frame prediction using deep neural networks

Sep. 2016 – Nov. 2018

Istanbul, Turkey

### Koc University, Teaching assistant

- Preparing and leading laboratory sessions for the course, Programming with MATLAB

Sep. 2016 – Nov. 2018

Istanbul, Turkey

### Champalimaud Centre for the Unknown, Intern

- Processing neural signals and videos obtained by rat experiments
- Designing the controller board. ▪ Article acknowledgment: [DOI](#)

Jul. 2013 – Oct. 2013

Lisbon, Portugal

### Sabanci University

- Peer lecturer on freshman mathematics, physics, chemistry, and biology

Feb. 2010 – Jun. 2014

Istanbul, Turkey

## EDUCATION

### University of Porto

PhD, Electrical and Computer Engineering

Present

Porto, Portugal

### Koc University

MS, Electrical and Electronics Engineering (GPA: 3.81/4, converted to 19/20)

Nov. 2018

Istanbul, Turkey

### Sabanci University

BS, Electronics Engineering (GPA: 3.86/4, converted to 20/20)

Jun. 2014

Istanbul, Turkey

## AWARDS & FUNDING

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**Doctoral Fellowship**, la Caixa Foundation

**Doctoral Fellowship**, Portuguese Foundation for Science and Technology (FCT)

**Seed Projects Research Grant**, INESC TEC

**Best Presentation Award**, EPIA Conference on Artificial Intelligence Student Symposium

**Ranked 9 out of 204,392** in the Turkish Academic Personnel and Graduate Education Exam

**Ranked 297 out of 1,349,782** in Turkish University Entrance Exam

**Graduate Fellowship (Master's)**, Koc University

**Excellence Merit Scholarship (Bachelor's)**, Education Foundation of Turkey

**Excellence Merit Scholarship (Bachelor's)**, Sabanci University

**Employment Scholarship**, Sabanci University

**Bachelors Scholarship**, Prime Ministry of Turkey

**Erasmus+ Exchange Grant**, European Commission

**Erasmus+ Internship Grant**, European Commission

## SKILLS

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**Deep learning:** Pytorch, Tensorflow, generative AI, transformers, adversarial learning, convolutional neural networks, vision language models, LoRA finetuning, cloud platforms (AWS, GCP, Azure), Slurm

**Programming:** Python, MATLAB, C++, Julia

**Signal processing:** MIDI, audio, image, video, natural language processing; video compression; computer vision

**Miscellaneous:** Machine learning, remote development, Git, LaTeX, Ubuntu, Bash

**Music:** Drumming, Cubase, ProTools, Audacity, MIDI

## MANAGEMENT AND LEADERSHIP

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**Principal Investigator:** INESC TEC Seed project: Video and MIDI processing using deep neural networks.

**Supervisor:** Master's thesis: Emotion classification of MIDI lyrics using transformers

**Supervisor:** Bachelor's project: Speech emotion classification

**Coordinator:** Lab sessions and 5 assistants in the course, Introduction to MATLAB

## INVITED TALKS

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**Introduction to deep learning**, Polytechnic Institute of Porto, Portugal

**Deep learning for music generation**, University of Porto, Portugal

**Deep learning for music information retrieval**, University of Porto, Portugal

## INTERVIEWS

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**SIC Notícias:** Portugal vai receber Turquia

[Website](#) | [YouTube](#)

**Observador:** Generating music from videos

[Portuguese original](#) | [English translation](#)

**Olhar No Progresso:** Deep learning, multimedia, and music

[Website](#) | [YouTube](#)

## LANGUAGES

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English (C2), Portuguese (B1), Spanish (A1), Turkish (native)

## ACTIVITIES

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**Finished in 04:20:05**, in the 42 km. Porto Marathon

**Drummer**, in Santa Cecilia Music School rock band

**Parachuting**, in Turkish Aeronautical Association with 5-day training camp and 400 m. solo jump

**Volunteer**, Telfs Youth Center Austria (Erasmus+) and World Wide Opportunities on Organic Farms (WWOOF)