



# Serkan Sulun, PhD

Machine learning scientist

- ❖ [serkansulun.com](https://serkansulun.com)
- ❖ [serkan.sulun@inesctec.pt](mailto:serkan.sulun@inesctec.pt)
- ❖ [github.com/serkansulun](https://github.com/serkansulun)
- ❖ [Google Scholar](https://scholar.google.com/citations?user=...)

## 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](#) | [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](#) | [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](#) | [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](#) | [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](#) | [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](#) | [code](#)

Sulun, S. (2018). Deep Learned Frame Prediction for Video Compression, Master's Thesis. [arXiv](#) | [code](#)

## WORK EXPERIENCE

<b>INESC TEC, Researcher</b> <ul style="list-style-type: none"><li>Automatic video-based symbolic music generation</li><li>Finetuning vision language models for industrial safety</li></ul>	<b>Mar. 2019 – Present</b> Porto, Portugal
<b>University of Porto, Lecturer</b> <ul style="list-style-type: none"><li>Lecturer for the course Programming with Python</li></ul>	<b>Sep. 2023 – Present</b> Porto, Portugal
<b>Catolica Porto Business School, Lecturer</b> <ul style="list-style-type: none"><li>Lecturer for the course Python for Business Analytics</li></ul>	<b>Mar. 2024 – Present</b> Porto, Portugal
<b>Koc University, Research assistant</b> <ul style="list-style-type: none"><li>Video compression and frame prediction using deep neural networks</li></ul>	<b>Sep. 2016 – Nov. 2018</b> Istanbul, Turkey
<b>Koc University, Teaching assistant</b> <ul style="list-style-type: none"><li>Preparing and leading laboratory sessions for the course, Programming with MATLAB</li></ul>	<b>Sep. 2016 – Nov. 2018</b> Istanbul, Turkey
<b>Champalimaud Centre for the Unknown, Intern</b> <ul style="list-style-type: none"><li>Processing neural signals and videos obtained by rat experiments</li><li>Designing the controller board. Article acknowledgment: <a href="#">DOI</a></li></ul>	<b>Jul. 2013 – Oct. 2013</b> Lisbon, Portugal
<b>Sabanci University</b> <ul style="list-style-type: none"><li>Peer lecturer on freshman mathematics, physics, chemistry, and biology</li></ul>	<b>Feb. 2010 – Jun. 2014</b> Istanbul, Turkey

## EDUCATION

<b>University of Porto</b> PhD, Electrical and Computer Engineering	<b>Present</b> Porto, Portugal
<b>Koc University</b> MS, Electrical and Electronics Engineering (GPA: 3.81/4, converted to 19/20)	<b>Nov. 2018</b> Istanbul, Turkey
<b>Sabanci University</b> BS, Electronics Engineering (GPA: 3.86/4, converted to 20/20)	<b>Jun. 2014</b> 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 Noticias**: Portugal vai receber Turquia

**Observador**: Generating music from videos

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

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

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

[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)