

Olga Slizovskaia

Carrer de Roc Boronat 138
Barcelona, Spain, 08018
☎ +34 (653) 20 50 62
✉ olga.slizovskaia@upf.edu
📧 olgaslizovskaia.ml
🌐 [olga-slizovskaya-ba36871a](https://www.linkedin.com/in/olga-slizovskaya-ba36871a)
🌐 [veleslavia](https://www.veleslavia.com)

Lines of Research My research interests lie at the intersection of machine learning and deep learning (mostly convolutional neural networks and autoencoders), audio signal processing and computer vision. During last three years, I have been working on audio-visual methods applying to music information retrieval for such tasks as musical instrument recognition and source separation.

Education

01/2016–ongoing **PhD Candidate, Information and Communication Technologies, Department of Information and Communication Technologies, Universitat Pompeu Fabra, Barcelona, Spain.** (03/2020)

Supervisor: Prof. Emilia Gomez, Prof. Gloria Haro

09/2008–07/2013 **Specialist degree, Applied Mathematics and Computer Science, Lomonosov Moscow State University, Moscow, Russia, GPA: 4.5/5.0.**

Supervisor: Dr. Dmitry Kozlov

Thesis: Content-based and context-based music mood classification

Experience

Vocational

09/2018–12/2018 **Research intern, Telefonica R&D, Barcelona, Spain.**

Research on the applicability of flow-based generative models for anomaly detection in images and KPI time series.

Keywords: normalizing flows, anomaly detection, pytorch

06/2018–07/2018 **Visiting researcher/Participant, Jeju Deep Learning Camp, Jeju National University, South Korea.**

Visually-informed music source separation project.

Keywords: multimodal source separation, U-Net, Wave-U-Net, Tensorflow

01/2016–present **PhD researcher, Universitat Pompeu Fabra, Music Technology Group & Image Processing Group, Barcelona, Spain.**

This research project is focused on audio-visual approaches in music information retrieval. My research interests lie at the intersection of machine learning (particularly deep learning), audio signal processing and computer vision. I am working on audio-visual musical instrument recognition in videos and interpretability of the learned multimodal representation.

Keywords: convolutional neural networks, music information retrieval, musical instrument detection, video analysis

05/2015– **Data Analyst/Software Engineer**, *Data-Centric Alliance*, Moscow, Russia.

11/2015 Responsibilities:

- developing machine learning models for online advertising (includes data preprocessing and parameters optimization);
- writing Groovy scripts for internal data management platform Facetz;
- statistical hypothesis testing.

Keywords: Python, Weka, scikit-learn, Hbase, Hive, HDFS, Groovy, MongoDB

12/2013– **Music Ingestion Engineer**, *Zvooq LLC*, Moscow, Russia.

04/2015 I was working on music ingestion infrastructure of Russian music streaming service Zvooq.

Accomplishments:

- renovated music ingestion infrastructure within a group of engineers;
- set up weekly reports on content processing;
- designed and developed a prototype of a system to compute legal restrictions for the music streaming process.

Keywords: Python, PostgreSQL, R, bash, RabbitMQ, FreeBSD, Hbase

09/2012– **QA/Test Engineer**, *Mentor Graphics Development Services Ltd*, Moscow, Russia.

12/2013 Functional and regression testing, test cases preparation, bug tracking and reporting.

Teaching Experience

2019 **Teaching Assistant, Analysis and Design of Algorithms (code 24298)**, *Universitat Pompeu Fabra*, Barcelona, Spain.

The subject is compulsory for Bachelor's degree in Computer Science at UPF (2nd year). The course covers various techniques of algorithm design and analysis such as divide and conquer, greedy algorithms, dynamic programming, randomized algorithms and NP-completeness. I was giving seminars, grading weekly assignments and exams, resolving student issues throughout the course.

2017–2019 **Teaching Assistant, Image Analysis and Interpretation (code 21632)**, *Universitat Pompeu Fabra*, Barcelona, Spain.

The course covers fundamental and advanced techniques in computer vision such as image representations, point and feature detection and matching, clustering and segmentation, foreground-background decomposition, face detection, object and scene recognition.

2016–2018 **Teaching Assistant, Sound Creation Lab (code 21629)**, *Universitat Pompeu Fabra*, Barcelona, Spain.

The main focus of the course is on sound recording, mixing, generation and analysis. Students also get to know about audio features in time and spectral domains. For the final project students aim to create a complete musical piece with a real-time interaction.

09/2012– **Teaching Assistant, Informatics**, *179 School of Moscow Institute Of Open Education*, Moscow, Russia.

05/2013 Introduction to algorithms and programming languages for secondary school. Introduction to LegoNXT platform, PID-controllers. The final project of the course is based on LegoNXT.

Organization Experience & Review Activities

2016–2019 International Society for Music Information Retrieval Conference, *Reviewer*

2019 DCASE Workshop, *Reviewer*

2016–2018 DTIC Doctoral Student Workshop, UPF, *Organizing committee member*

09/2016 Women in Machine Learning, *Reviewer, Volunteer*

08/2015 PyLadies Moscow Meetup, *Organizer*

Talks & Poster presentations

- 09/2017 Correspondence between audio and visual deep models for musical instrument detection in video recordings, *Systematic Approached to Deep Learning Methods for Audio*, Vienna, Austria
- 05/2017 Convolutional neural networks for audio processing: starting pack, *PyData Conference, Tutorial*, Barcelona
- 03/2017, 03/2018 Introduction to Deep Neural Networks, *for Sound and Music Computing master students*, UPF, Barcelona
- 12/2016 Automatic musical instrument recognition in audio-visual recordings by combining image and audio classification strategies, *11th Women in Machine Learning Workshop, co-located with NIPS*, Barcelona
- 12/2016 Musical instrument recognition in user-generated videos using a multimodal convolutional neural network architecture, *Workshop on music knowledge extraction using machine learning, co-located with NIPS*, UPF
- 10/2016 Optimization for Training Deep Models, *Deep Learning Study Group seminar*, UPF
- 04/2016 Towards the self-annotating multimedia, *Research in 4 minutes competition*, UPF

Projects/Courses

- 07/2019 Participant at Google CodeU EMEA Program
- 07/2018 Visually-informed music source separation @ Jeju Deep Learning Camp
- 2016 LifeSoundtrack (Banda Sonora Vital). Music recommendation system for people with dementia, *MTG, UPF. Developer*

Research projects

Total number of research projects: 2

- MDM-2015-0502 **Maria de Maetzu Unit of Excellence: Large-scale Multimedia Music Data**, *Spanish Ministry of Economy and Competitiveness*.
Participants: UPF.
Duration: 3 years. Date: from 11/01/2016 - 11/01/2019.
Head of research: Prof. Emilia Gomez, Prof. Gloria Haro.
Number of researchers taking part: 4
- TROMPA **TROMPA: Towards Richer Online Music Public-domain Archives (H2020-770376)**, *European Research Council*.
Participants: UPF, TU Delft, Goldsmiths' College, MDW, Video Dock BV, Voctro Labs SL, Peachnote GMBH, RCO, CDR.
Duration: 1.5 years. Date: from 01/05/2018 to 11/01/2020.
Head of research: Prof. Emilia Gomez.
Number of researchers taking part: 11 (UPF)

Honors

- 07/2018 Google Cloud Research Grant @ Jeju Deep Learning Camp
- 03/2016 Maria de Maetzu Unit of Excellence Fellowship, UPF
- 01/2016 Universitat Pompeu Fabra PhD Scholarship, UPF

Skills

Programming Languages	Python, PL/pgSQL, R, bash, Matlab, C/C++	Scientific Libs	NumPy, Scikit-learn, Pandas, OpenCV, Theano, TensorFlow, Keras, XGBoost, librosa, etc.
Programming Tools	git, SVN, Docker, Vagrant, Jenkins, Apache	Professional Libs	SQLAlchemy, Alembic, RabbitMQ (pika, kombu)
Databases	PostgreSQL, MySQL, MongoDB, Hive, Hbase	Additional Skills	Latex, UML, Intel Rational software, Mentor Graphics Xpedition

Languages

Russian	Native
English	C1.1 CEFR
Spanish	B2.1 CEFR

Publications

- [1] Olga Slizovskaia, Emilia Gómez, and Gloria Haro. Automatic musical instrument recognition in audiovisual recordings by combining image and audio classification strategies. In *13th Sound and Music Computing Conference (SMC 2016)*, Hamburg, Germany, 2016.
- [2] Jordi Pons, Olga Slizovskaia, Rong Gong, Emilia Gómez, and Xavier Serra. Timbre analysis of music audio signals with convolutional neural networks. In *25th European Signal Processing Conference (EUSIPCO)*, Kos island, Greece, 2017. IEEE.
- [3] Olga Slizovskaia, Emilia Gómez, and Gloria Haro. Musical instrument recognition in user-generated videos using a multimodal convolutional neural network architecture. In *ACM International Conference on Multimedia Retrieval*, Bucharest, Romania, 2017. ACM Digital Library.
- [4] Eduardo Fonseca, Rong Gong, Dmitry Bogdanov, Olga Slizovskaia, Emilia Gomez, and Xavier Serra. Acoustic scene classification by ensembling gradient boosting machine and convolutional neural networks. In *Workshop on Detection and Classification of Acoustic Scenes and Events*, Munich, Germany, 2017.
- [5] Olga Slizovskaia, Emilia Gómez, and Gloria Haro. Correspondence between audio and visual deep models for musical instrument detection in video recordings. In *18th International Society for Music Information Retrieval Conference*, Suzhou, China, 2017.
- [6] Olga Slizovskaia, Emilia Gómez, and Gloria Haro. A case study of deep-learned activations via hand-crafted audio features. In *The 2018 Joint Workshop on Machine Learning for Music (ICML workshop program)*, Stockholm, Sweden, 2018.
- [7] O. Slizovskaia, L. Kim, G. Haro, and E. Gomez. End-to-end sound source separation conditioned on instrument labels. In *ICASSP 2019 - 2019 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 306–310, May 2019.