Matteo Pettenò

Sophia Antipolis, France

Profile

I am a Marie Skłodowska-Curie PhD Student in the Privacy for Smart Speech Technology Doctoral Network. The PSST project addresses the privacy risks posed by voice-based interfaces and works towards privacy-enhancing speech solutions that align with EU laws like the GDPR and the AI Act. As Fellow 2 of the program my PhD is jointly hosted by EURECOM and Ruhr-Universität Bochum and my research focuses on disentangled representations for selective attribute suppression in smart speech technologies: developing deep-learning methods to allow users to control which voice attributes are disclosed or suppressed in speech interactions, while maintaining necessary utility for applications.

Skills

- Python, C++, MATLAB, GLSL, JAVA, SQL, JS, CSS
- Keras, Tensorflow, PyTorch
- NumPy, SciPy, scikit-learn
- Apache Beam, Apache Airflow, Apache Spark
- GCP, AWS, CI/CD, Docker, LXC, Proxmox
- Tone.js, Three.js, Svelte, Vue.js, Firebase, Flask, Spring, PWA, Workbox, Hugo
- JUCE, Supercollider
- librosa, FMP Notebooks
- Logic Pro, Ableton Live, Reaper, Ardour
- COMSOL, REW
- gdb, OWASP ZAP, ghidra
- Figma

Education

Ph.D. Candidate in PSST (Marie Curie Fellow) 09/2025 - Expected 2029
Digital Security Department, EURECOM Sophia Antipolis, France
IKA, Ruhr-Universität Bochum (RUB) Bochum, Germany

- *Privacy for Smart Speech Technology* (PSST) joint doctoral training programme
- Funded by Horizon Europe Marie Skłodowska-Curie Action
- 19 months at EURECOM, 6-months secondment at Orange and 26 months at RUB
- **Research focus**: Disentangled representations for selective attribute suppression

Master's Degree in Music and Acoustic Engineering 09/2021 - 10/2024
DEIB, Politecnico di Milano (PoliMi) - Graduated Cum Laude Milan, Italy

- Relevant Courses: Machine Learning, Computer Music, Sound Analysis Synthesis and Processing, Creative Programming and Computing, Musical Acoustics, Electronics and Electroacoustics, Computer Security
- Thesis: *Latent Space Regularization via Normalizing Attribute Transformations for Symbolic Music Generation*

Bachelor's Degree in Information Engineering 09/2013 - 07/2021
DEI, University of Padua (UNIPD) Padua, Italy

- Relevant Courses: Algorithms for Engineering, Systems and Models, Control systems, Electronics, Telecommunications
- Thesis: *Evaluation of the performance of commercial STT and NER services applied to digitized oral sources*
- Note: Suspension of studies from 2016 to 2019.

Publications

M. Pettenò, A. I. Mezza and A. Bernardini, "Conditional Diffusion As Latent Constraints for Controllable Symbolic Music Generation", in Proc. of the *26th Conference of the International Society for Music Information Retrieval (ISMIR)*, Daejeon, Korea, Sept. 21-25, 2025

M. Pettenò, A. I. Mezza and A. Bernardini, "On the Joint Minimization of Regularization Loss Functions in Deep Variational Bayesian Methods for Attribute-Controlled Symbolic Music Generation", in Proc. of the *33rd European Signal Processing Conference (EUSIPCO)*, Palermo, Italy, Sept. 8-12, 2025.

R. B. Luzietti et. al, FONTI 4.0: Evaluating Speech-to-Text Automatic Transcription of Digitized Historical Oral Sources. *Proceedings of the Eighth Italian Conference on Computational Linguistics CliC-it*, 2021

Work Experience

Full Stack Developer 11/2021 - 08/2023
ccelera s.r.l (Arsenalia Group) - Via Lepetit, 8, 20124 Milan, Italy

- Platforms: SAP Hybris Commerce
- Customers: Bonfiglioli, Cellularline, PegPerego, Metal Work

DevOps Engineer 09/2019 - 02/2021
Walit s.r.l - Via Dandolo, 25/B, 31100 Treviso, Italy

- Platforms: Google Cloud Platform (GCP), Gitlab, Flask, OWASP ZAP

System Integration Engineer 01/2019 - 07/2019
Alpenite Ltd - 38 Craven Street, WC2N 5NG London, UK

- Platforms: Mulesoft, RabbitMQ, FTP
- Customers: Stella McCartney

Full Stack Developer 01/2017 - 01/2019
Alpenite s.r.l (Arsenalia Group) - Via delle Industrie, 27/7, 30175 Venice, Italy

- Platforms: SAP Hybris Commerce
- Customers: Kering Eyewear

Research Interests

- Deep Learning
- Representation Learning
- Speech Processing
- Privacy Preservation
- Speaker Anonymization
- Deepfake Detection
- Music Information Retrieval
- Audio Generation
- AI-Assisted Music Composition
- Music Understanding
- Hearing Aids

Languages

Italian: Mother tongue

English: Fluent (C1)

French: Base (A1)

Musical background

As a self-taught multi instrumentalist, I have a well-rounded skill set across guitar, piano, and drums, while not being a virtuoso in any of them. My passion for synthesizers has always been a major influence, and listening across genres has enriched my understanding of music. I have experience playing in bands, which has further developed my collaborative skills. Additionally, I have a solid background in music theory, which I have developed independently over the years through my playing and further strengthened through courses in my master's degree.

Research Projects

Conditional Diffusion as Latent Constraints for Unconditional Symbolic Music Generation Models 2025
In Proc. of the 26th Conference of the ISMIR github
Keywords: symbolic music, attribute-controlled generation, diffusion models, latent constraints

On the Joint Minimization of Regularization Loss Functions in Deep Variational Bayesian Methods for Attribute-Controlled Symbolic Music Generation 2025
In Proc. of the 33rd EUSIPCO github
Keywords: symbolic music, attribute-controlled generation, power transforms

Do Unconditional Deep Generative Models Spontaneously Learn How to Encode Human-Interpretable Musical Attributes? 2023
Music and Acoustics Engineering Capstone course in MS. github
Keywords: variational autoencoders, latent space topological structure

Evaluation of the performance of commercial STT and NER services applied to digitized oral sources 2021
Thesis in Information Engineering BS github
Keywords: speech-to-text, named-entity-recognition, gcp, aws

Creative & Computer Music Projects

Ego 2023
Creative Programming & Computing course in MS github
Keywords: three.js, glsl, svelte, mediapipe, max4live, tone.js

Pulseq - Fractal Sequencer 2022
Advanced Coding Tools and Methodologies course in MS github
Keywords: fractal sequencer, web app, svelte, tone.js, glsl

OranJam - JUCE 2022
Computer Music Languages and Systems course in MS github
Keywords: juce, c++, cmake

HarMMMLonizer - Supercollider 2022
Computer Music Languages and Systems course in MS github
Keywords: supercollider, harmonizer, delay lines, crosstalk delay feedback

Acoustics Projects

Design of a Piano 2023
Musical Acoustics: Characterization of Musical Instruments course in MS report
Keywords: applied acoustics, comsol, matlab, piano modeling

Wave Digital Filter Modeling 2022
Sound Synthesis and Spatial Processing course in MS report
Keywords: wdf, matlab, virtual analog

Acoustic Source Localization with Microphone Array 2022
Digital Audio Analysis and Processing course in MS report
Keywords: sound localization, doa estimation, matlab, microphone arrays

RIR Estimation with Wiener Filters 2022
Digital Audio Analysis and Processing course in MS report
Keywords: room impulse response, wiener filter, matlab, convolution