

CURRICULUM VITAE AND PUBLICATIONS

Niccolò Pretto

November 25, 2024

Abstract

Niccolò Pretto is a *Ricercatore RTDa* (SSD INFO-01/A) at the Faculty of Engineering of the Free University of Bozen-Bolzano (UNIBZ), investigating the field of sound and music computing (Applied Computing subfield in ACM classification), working on artificial intelligence algorithms and standards for multimedia data, and in particular for musical cultural heritage and oral archives. He completed his Ph.D. in Information Engineering at the University of Padova, where he worked as *assegnista*, *borsista* and *professore a contratto* for almost 8 years and where he was PI of the project IT4aREC, aiming to develop algorithms and software for restoring and analyzing historical audio recordings. He has teaching experience at both bachelor, master, and PhD levels, in Italy and abroad. His supervision activity consists of 4 bachelor students and 1 industrial internship, and co-supervision of 20 bachelor and 11 master students. He collaborated on 14 research projects (4 international, 4 national, and 6 within universities), he is a team member of 7 infrastructure projects funded by the UNIBZ and principal investigator of 1 regional teaching project. He contributed to the development of MPAI standard CAE, recently adopted as IEEE 3302-2022 standard, which specifies AI-based technologies for audio-related applications. Furthermore, he is a founding member of the MPAI Store Limited, a Company Limited by Guarantee in Dundee, Scotland. He is also associate editor of the ACM Journal on Computing and Cultural Heritage and guest editor of two special issues on computational methodologies applied to audio collections. His overall scientific production consists of 45 contributions: 12 peer-reviewed international journal articles, 23 peer-reviewed contributions on national and international conference proceedings, 2 books, 3 book chapters, 2 editorials, the PhD thesis, an international standard, and a national guideline. At the date of the submission, he has 357 citations in Google Scholars and 189 in Scopus, with h-indexes of 10 and 8, respectively, fulfilling the three indexes for “Abilitazione Scientifica Nazionale - II fascia” in the INF/01 and ING-INF/05 sectors.

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Part I

General information, academic positions, and education

1 Personal information

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Academia.edu: unibz.academia.edu/NiccolòPretto

At the date of the submission, Niccolò Pretto has 318 citations in Google Scholars and 174 in Scopus, with h-indexes of 10 and 8, respectively, **and fulfills the three indexes for applying to the “Abilitazione Scientifica Nazionale - II fascia” in the 01/B1 - Informatica sector.**

2 Current position

- 01 Dec 2022 - present. **Assistant Professor** (*Ricercatore a tempo determinato junior - RTDa*), Faculty of Engineering, Free University of Bozen-Bolzano. SSD: INFO-01/A.

3 Previous academic positions

- 17 Jan 2024 - 19 Jan 2024. **Part-Time Lecturer** (*Nebenberuflicher Lehrbeauftragter*), University of Applied Science Upper Austria, School of Informatics, Communications and Media, Hagenberg, Austria.
Responsibilities: Teaching a module of the course “Mobile Device Technology 2”.
- 28 Sep 2022 - 30 Nov 2022. **Adjunct Professor** (*Professore a Contratto*), Department of Information Engineering, University of Padova.
Responsibilities: Responsible of the course “Fondamenti di Informatica”.
- 15 Dec 2020 - 30 Nov 2022. (23.5 months) **Senior Postdoctoral research fellow** (*Assegnista di ricerca Senior Tipo B*) - **Principal investigator** of the project *IT4aREC- Innovative Tools and Algorithms for preserving and Archiving Analogue Audio RECORDings*, Department of Information Engineering, University of Padova.
Responsibilities: Design of innovative algorithms and development of new software tools for (a) validating digital preservation copies of historical audio recordings, (b) restoring and analysing them [J10], and (c) supporting the creation of archival units (items).
- 15 Jul 2021 - 30 Nov 2022. (16.5 months) **Associate researcher** (*Ricercatore Associato*) of the Institute for Computational Linguistics “A. Zampolli”, National Research Council (ILC-CNR), Pisa.
Responsibilities: Development of the Archivio Vi.Vo. platform [BC3], which is part of the CLARIN-IT infrastructure (archiviovivo.clarin-it.it), and hosted in the GARR Consortium (www.garr.it).

garr.it) data centre. It consists of a cloud infrastructure and *ad hoc* interfaces for preserving, restoring, describing, and accessing digitised audio recordings. My main contribution consists in the design and development of the model and web interfaces at the base of the cloud platform.

- 01 Sep 2020 - 14 Dec 2020. (3 months) **Postdoctoral research fellow** (*Assegnista di ricerca Tipo A*) - Grant at the Department of Information Engineering, University of Padova, working on the project *FONTI 4.0 - Innovative accessing methodologies for digitised oral sources through new technologies of the creative industry 4.0* (original Italian title: *FONTI 4.0 - Fruizione innovativa di fonti Orali digitalizzate mediante le Nuove Tecnologie dell'Industria creativa 4.0*) financed by Veneto Region with FSE funding.
Responsibilities: Development and assessment of a “transcription chain” for automatising the analysis and cataloguing of digitised oral sources.
- 02 Mar 2020 - 31 Aug 2020. (6 months) **Postdoctoral research fellow** (*Assegnista di ricerca professionalizzante*) - Grant at Institute for Computational Linguistics “A. Zampolli”, National Research Council (CNR), Pisa, Italy, working on the projects *Valorisation of the Archival Heritage - Archivio Vi.Vo.* (original Italian title: *Valorizzazione Patrimonio Archivistico - Archivio Vi.Vo.*) and *CLARIN-ERIC - Development of a data center for archiving and storing linguistics data* (original Italian title: *CLARIN-ERIC - Sviluppo di un data centre che offre un sistema di archiviazione e deposito di dati linguistici*) financed by Toscana Region and CNR.
Responsibilities: Development of a cloud platform for the preservation, restoration, description and cataloguing of digitized audio recordings.
- 15 Oct 2019 - 29 Feb 2020. (4.5 months) **Postdoctoral grant** - (*Borsista di ricerca*) - Grant at the Department of Information Engineering, University of Padova, working on the project *Models and IT applications for the exploitation of musical heritage* financed by Department of Information Engineering.
Responsibilities: Development of web applications for accessing and describing digitised audio recordings.
- 15 Oct 2018 - 14 Oct 2019. (12 months) **Postdoctoral research fellow** (*Assegnista di ricerca Tipo A*) - Grant at the Department of Information Engineering, University of Padova, working on the project *Using Speech Archives: Model and Implementation* financed by the Department of Information Engineering.
Responsibilities: Development of model and software for accessing oral archives.
- 09 Oct 2017 - 29 Mar 2018. (6 months) **Visiting Researcher** - Mobility period at Music Technology Group of Universitat Pompeu Fabra, Barcelona, collaborating on ERC project CompMusic.
Responsibilities: Creation of a corpus for Arab-Andalusian music and development of algorithms for its analysis based on the scores.
- 01 Oct 2015 - 30 Sep 2018. (3 years) **PhD Student** - Grant at the Department of Information Engineering, University of Padova, financed by Fondazione Cariparo.
Responsibilities: a) development of software for the preservation of tape music, b) creation of a multimedia installation for musical heritage, c) development of algorithms for the analysis of Arab-Andalusian music.
- 01 Apr 2015 - 30 Sep 2015. (6 months) **Research assistant** - *Assegnista di ricerca Tipo A* - Grant at the Department of Cultural Heritage, University of Padova, working on the project *Archaeology & Virtual Acoustics. A Pan flute from ancient Egypt* financed by the University.
Responsibilities: Design and development of an interactive multimedia installation for playing and exploring the history of an ancient Pan flute.
- 01 Apr 2014 - 30 Mar 2015. (12 months) **Research assistant** - *Assegnista di ricerca Tipo A* -

Grant at the Department of Information Engineering, University of Padova, working on the project *Design and development of interactive mobile system for the access to digitised audio documents and artistic multimedia installation* financed by Veneto Region with European Social Funding.

Responsibilities: Design and development of skeuomorphic mobile and web applications for accessing historical audio tape recordings.

4 Education

- 14 Feb 2019. **PhD in Information Engineering** (*Dottorato in Ingegneria dell'Informazione, curriculum Scienza e Tecnologia dell'Informazione*), Department of Information Engineering, University of Padova, financed by Fondazione Cariparo. Supervisor: Prof. Sergio Canazza. PhD thesis: "Cultural Context-Aware Models and IT Applications for the Exploitation of Musical Heritage".
- 06 Mar 2014. **Masters Degree in Computer Engineering** (*Laurea Magistrale in Ingegneria Informatica - LM 32*), Department of Information Engineering, University of Padova. Supervisor: Prof. Sergio Canazza. Master's thesis: "A model for philologically accessing to audio documents: a web-based virtualization of a gramophone to replay digitized shellac discs" (original Italian title: "Un modello per la fruizione filologica di documenti sonori storici: virtualizzazione web-based di un grammofono per la riproduzione di dischi fonografici digitalizzati").
- 23 Jul 2010. **Bachelor Degree in Computer Engineering** (*Laurea triennale in Ingegneria Informatica - Class 9*), Department of Information Engineering, University of Padova. Supervisor: Dr. Massimo Rumor. Bachelor thesis: "Vestition of topographic database of IGM using SLD" (original Italian title: "Vestizione di database topografici utilizzando SLD").

5 Other relevant educational experiences

- Jun 2018. **International summer school** of the 15th Sound and Music Computing Conference (SMC'18) at Cyprus University of Technology, Lymassol Cyprus. Main topics: Computational ethnomusicology and soundscape.
- Oct 2016 - Dec 2016. **Academic English Course** for PhD students, organized by Language Centre of University of Padova.
- Aug 2016. **International summer school** of the 13th Sound and Music Computing Conference (SMC'16) at Hamburg University of Music and Theatre, Hamburg, Germany. Main topics: Brain-computer music interfaces; Artificial neural networks; Networked music performance.
- Jul 2015. **International summer school** of the 12th Sound and Music Computing Conference (SMC'15) at University of Maynooth, Maynooth, Ireland. Main topics: Sound design for media and enabling audio technologies.

6 Languages

Italian: native language

English: C1 level certified in oral and written production and reading and listening comprehension by the Free University of Bozen-Bolzano (23 Jun 2023) - https://openbadges.bestr.it/public/assertions/cnyxmh_Sv08W9vsKbCkvg

Spanish: A1 level of Spanish certified by the Universitat Pompeu Fabra, Barcelona (21 Mar 2018)

Part II

Teaching Activities

7 Teaching

- 2024 - 2025. **Assistant Professor** (*Ricercatore RTDa*) - 60 hours (6 CFU) - **Responsible** for “Engineering of Mobile Systems” **module** (INF/01) of the “Mobile and Physical Systems” course (12 CFU) in the Bachelor in Computer Science of the Faculty of Engineering of the Free University of Bozen-Bolzano.
Lectures on fundamentals of mobile development, functional programming, and Kotlin programming for Android devices. Language of the course: English.
- 2023 - 2024. **Assistant Professor** (*Ricercatore RTDa*) - 12 hours (in progress) - **Responsible** of the **modules** “Empirical/experimental computer science research methods” (6 hours) and “Good scientific writing style” (6 hours), part of the course “Research Methods” (INF/01) of the **National PhD in Artificial Intelligence** and **PhD in Computer Science** of the Faculty of Engineering of the Free University of Bozen-Bolzano.
Lectures on fundamentals of research methods, empirical methods, experimental design, Latex and good scientific writing practices. Language of the course: English.
- 2023 - 2024. **Part-Time lecturer** (*Nebenberuflicher Lehrbeauftragter*) - 12 hours - **Module** of the course “Mobile Device Technology 2” in the Bachelor in Mobile Computing of the University of Applied Science Upper Austria, School of Informatics, Communications and Media.
Lectures on prototyping of mobile applications. Language of the course: English.
- 2023 - 2024. **Assistant Professor** (*Ricercatore RTDa*) - 60 hours (6 CFU) - **Responsible** for “Engineering of Mobile Systems” **module** (INF/01) of the “Mobile and Physical Systems” course (12 CFU) in the Bachelor in Computer Science of the Faculty of Engineering of the Free University of Bozen-Bolzano.
Lectures on fundamentals of mobile development, functional programming, and Kotlin programming for Android devices. Language of the course: English.
- 2023 - 2024. **Assistant Professor** (*Ricercatore RTDa*) - 9 hours (1.5 CFU) - **Module** of the course “Game theory explained with microcontrollers” (original title: *La teoria dei giochi spiegata con i microcontrollori* - INF/01, ING-INF/05, ING-INF/04) in the *Studium Generale* of the Free University of Bozen-Bolzano.
Lectures on microcontroller programming and fundamentals of embedded systems. Language of the course: English.
- 2022 - 2023. **Assistant Professor** (*Ricercatore RTDa*) - 60 hours (6 CFU) - **Responsible** for “Embedded Systems Design and Implementation” course (ING-INF/04) in the Master in Software Engineering (as a **module** of the “Systems Design and Implementation” course - 12 CFU) and Master in Industrial Mechanical Engineering (**standalone course** - 6 CFU) of the Faculty of Engineering of the Free University of Bozen-Bolzano.
Lectures on fundamentals of embedded and cyber-physical systems, micro-controller programming and sensors. Language of the course: English.
- 2022 - 2023. **Adjunct Professor** (*Professore a Contratto*) - 40 hours (5 CFU)¹ - **Responsible of the course** “Foundations of Computer Science (C)” (original title: *Fondamenti di Informatica*

¹The teaching activity (6 CFU) terminated before the end of the course because of the incompatibility with the new position at the Free University of Bozen-Bolzano.

C - INF/01 and ING-INF/05) in the Bachelor Degree in Information Engineering, Computer Science Engineering and Electronic Engineering at the Department of Information Engineering of the University of Padova. Language of the course: Italian.

Lectures on fundamentals of computer science and Java programming.

- 2021 - 2022. **Teaching Assistant (*Didattica Integrativa*)** - 16 hours - for the “Foundations of Computer Science” (original title: *Fondamenti di Informatica* - INF/01 and ING-INF/05) course in the Bachelor Degree in Information Engineering at the Department of Information Engineering of the University of Padova (Prof: Laura Bazzanella, Cinzia Pizzi, Andrea Loreggia).

Lectures on recursive algorithms and practicals. Language of the course: Italian.

- 2020 - 2021. **Cultore della materia and Exam Committee** for the “Foundations of Computer Science” (original title: *Fondamenti di Informatica* - INF/01 and ING-INF/05) course in the Bachelor Degree in Information Engineering at the Department of Information Engineering of the University of Padova (Prof: Adriano Luchetta).

- 2020 - 2021. **Cultore della materia and Seminar teaching** for the “Computer Science for Music and Multimedia” (original title: *Informatica per la Musica e il Multimedia* - ING-INF/05) course in the Master’s Degree in Information Engineering at the Department of Information Engineering of the University of Padova (Prof: Sergio Canazza).

Lecture on Web Audio API. Language of the course: Italian.

- 2020 - 2021. **Cultore della materia** for the “Sound Design and Music Technology” course (ING-INF/05) in the Master’s Degree in Communication at the Department of Linguistic and Literary Studies of the University of Padova (Prof: Antonio Rodà).

- 2019 - 2020. **Teaching Assistant (*Didattica Integrativa*)** - 20 hours - for the “Foundations of Computer Science” (original title: *Fondamenti di informatica* - INF/01 and ING-INF/05) course in the Bachelor Degree in Information Engineering at the Department of Information Engineering of the University of Padova (Prof: Laura Bazzanella, Sergio Canazza, Adriano Luchetta, Cinzia Pizzi).

Lectures on recursive algorithms and algorithm complexity, and practicals on version control systems (GIT). Language of the course: Italian.

- 2019 - 2020. **Seminar Teaching** for the “Sound and Music Computing” (original title: *Informatica Musicale* - ING-INF/05) course in the Master’s Degree in Information Engineering at the Department of Information Engineering of the University of Padova (Prof: Sergio Canazza, Giovanni De Poli, Antonio Rodà).

Lectures on audio recording preservation and Web Audio API. Language of the course: Italian.

- 2017 - 2020. **Projects Tutor** for the “Sound and Music Computing” (original title: *Informatica Musicale* - ING-INF/05) course in the Master’s Degree in Information Engineering at the Department of Information Engineering of the University of Padova (Prof: Federico Avanzini, Sergio Canazza, Giovanni De Poli, Antonio Rodà).

- 2018 - 2019. **Teaching Assistant (*Didattica Integrativa*)** - 32 hours - for the “Embedded System Programming” (original title: *Programmazione di Sistemi Embedded* - ING-INF/05) course in Bachelor and Masters Degrees in Computer Science at the Department of Information Engineering of the University of Padova (Prof: Carlo Fantozzi).

Lectures and practicals in Android app development. Language of the course: Italian.

- 2017 - 2019. **Cultore della Materia** for the “Sound and Music Computing” (original title: *Informatica Musicale* - ING-INF/05) course in the Master’s Degree in Information Engineering at the Department of Information Engineering of the University of Padova (Prof: Federico Avanzini, Sergio Canazza, Giovanni De Poli, Antonio Rodà).

- 2017 - 2018. **Laboratory Tutor** - 94 hours - for the “Computer Architecture” (original title: *Architettura degli Elaboratori* - ING-INF/05) course in the Bachelor Degree in Information Engineering at the Department of Information Engineering of the University of Padova (Prof: Matteo Comin, Emanuele Menegatti, Antonio Rodà, Francesco Silvestri).
Practicals in Assembly ARM programming. Language of the course: Italian.
- 2016 - 2017. **Laboratory Tutor** - 100 hours - for the “Foundations of Computer Science” (original title: *Fondamenti di Informatica* - INF/01 and ING-INF/05) course in the Bachelor Degree in Information Engineering at the Department of Information Engineering of the University of Padova (Prof: Federico Avanzini, Sergio Canazza, Marcello Dalpasso).
Practicals in Java programming. Language of the course: Italian.

8 Supervision and student service activities

- 2023 - present. **Supervisor (*Relatore*)** for **4 bachelor’s** students (3 currently active and 1 concluded) and **1 internship** at the Free University of Bozen-Bolzano.
- 2014 - 2022. **Assistant supervisor (*Correlatore*)** for **20 bachelor’s** and **11 master’s** students, during their theses. Supervisors: a) University of Padova - Sergio Canazza, Carlo Fantozzi, and Antonio Rodà; b) Politecnico di Milano - Augusto Sarti.
- 2024 - present. **Member of the Thesis Commission**, Bachelor of Computer Science, Master in Computational Data Science, Master in Software Engineering of the Free University of Bozen-Bolzano.
- 2023 - present. **External member of the Advanced-Systems Engineering PhD Committee** at the Free University of Bozen-Bolzano.

Part III

Research, institutional, organizational, management and service activities

9 Organising, directing, and coordinating national and international research centres or groups, or participating in them

The following title has been evaluated as a valid title for the *Abilitazione scientifica nazionale - II fascia* in the application for the sector INF/01 VI quadrimestre 2021/23.

I participated in the research activities of **4 different national and international groups**:

- “Centro di Sonologia Computazionale” of the Department of Information Engineering at the University of Padova (UNIPD), one of the oldest and most important laboratories in the sound and

ID	Center	Type	Name
INT1	UPF	Internat.	CompMusic (ERC)
INT2	UNIPD	Internat.	FONTI 4.0
INT3	UNIPD	Internat.	MPAI
INT4	UNIBZ	Internat.	EMotion
NAT1	UNIPD	National	PAMU
NAT2	ILC	National	Archivio Vi.Vo.
NAT3	ILC	National	CLARIN-IT
NAT4	UNIPD	National	Vademecum per le fonti orali
UNI1	UNIPD	Uni/Dept.	Design and development of interactive mobile system for the access to digitized audio documents and artistic multimedia installation
UNI2	UNIPD	Uni/Dept.	Archaeology & Virtual Acoustics
UNI3	UNIPD	Uni/Dept.	Using Speech Archives: Model and Implementation
UNI4	UNIPD	Uni/Dept.	Models and IT applications for the exploitation of musical heritage
UNI5	UNIPD	Uni/Dept.	IT4aREC
UNI6	UNIBZ	Uni/Dept.	Embodied data lab
INFR1	UNIBZ	Infrastr.	Smart Textile Lab (STL)
INFR2	UNIBZ	Infrastr.	Optical microscope/macroscope with high focus depth for the characterisation of 3D surfaces
INFR3	UNIBZ	Infrastr.	stylUs ThIn fILm mEtrology (UTILE)
INFR4	UNIBZ	Infrastr.	immersive SOUnd Lab (iSOUL)
INFR5	UNIBZ	Infrastr.	Multilingual Speech Production Database
INFR6	UNIBZ	Infrastr.	Confocal laser scanning surface analyser
INFR7	UNIBZ	Infrastr.	Electronic materials and devices on 3D and unconventional SURFaces
TEA1	UNIBZ	Teaching	Audio PROcessing and internet of SOUNDS

Table 1: Research projects divided by typology: international (Internat.) and national projects (National), University/Department research project (Uni/Dept.), infrastructure projects (Infrastr.), and teaching project (Teaching).

ID	Consortium
INT1	Pompeu Fabra University (SP), Tetouan-Asmir Center (MA)
INT2	DEI (IT), EPFL (CH), Fondazione Giorgio Cini (IT)
INT3	MPAI Community (more than 40 International universities and companies)
INT4	2 RTOs, 2 Universities, 7 Industrial Partners (AT)
NAT1	3 Departments of UNIPD (IT), IUAV University (IT), 4 companies
NAT2	University of Siena (IT), CNR (IT), Soprintendenza archivistica e bibliografica della Toscana (IT)
NAT3	CLARIN-IT Consortium, GARR Consortium
NAT4	More than 20 Italian central institutions, universities, associations and foundations
UNI1	Department of Information Engineering, UNIPD
UNI2	Department of Cultural Heritage, Department of Information Engineering, UNIPD
UNI3	Department of Information Engineering, UNIPD
UNI4	Department of Information Engineering, UNIPD
UNI5	Department of Information Engineering, UNIPD
UNI6	iNest Consortium, UNIBZ
INFR1	UNIBZ - Faculty of Engineering, Faculty of Design and Art
INFR2	UNIBZ - Faculty of Engineering, Faculty of Design and Art
INFR3	UNIBZ - Faculty of Engineering
INFR4	UNIBZ - Faculty of Engineering, Faculty of Education
INFR5	UNIBZ - Faculty of Engineering, Faculty of Education
INFR6	UNIBZ - Faculty of Engineering, Faculty of Design and Art
INFR7	UNIBZ - Faculty of Engineering, Faculty of Design and Art, Competence Centre for Mountain Innovation Ecosystems, Competence Centre for Plant Health
TEA1	UNIBZ and University of Trento

Table 2: Consortium

music computing field in Italy and worldwide.

- “Language Resources and Infrastructures” Group of the Institute for Computational Linguistics “A. Zampolli” (ILC), National Research Council (ILC-CNR).
- “Music Technology Group” of the Pompeu Fabra University (UPF - Barcelona, SP), recognized as one of the main labs in the sound of music computing field worldwide.
- “Media Interaction Lab”, originally established in Austria (in 2004), and now part of the Free University of Bozen-Bolzano (UNIBZ). The lab has been conducting research in Human-Computer Interaction (HCI) and Ubiquitous Computing.

Table 1 summarises the **14 research projects** (**4 international, 4 national, 6 within universities**) I contributed to, **7 funded infrastructure projects** funded by the Free University of Bozen-Bolzano where I am one of the proposal **team members** and **1 teaching project** where I am the **principal investigator**. The related consortia are shown in table 2. The research projects will be described in the following subsections. All the research projects have resulted in at least one publication. The only exception is INT4, because it was an industrial project (a letter confirming this collaboration is included as supplementary material of the application).

Role	Years	Funding Body	ID	Funding
Principal Investigator	2020-2022	B Senior Initiative, DEI, UNIPD	UNI5	60.000,00€
Principal Investigator	2024-2025	Euregio Mobility	TEA1	6.000,00€
Team member	2023-2024	Infra2023, UNIBZ	INFR1	199.096,00€
Team member	2023-2024	Infra2023, UNIBZ	INFR2	6.253,52€
Team member	2023-2024	Infra2023, UNIBZ	INFR3	75.892,00€
Team member	2024-2025	Infra2024, UNIBZ	INFR4	103.761,00€
Team member	2024-2025	Infra2024, UNIBZ	INFR5	149.908,64€
Team member	2024-2025	Infra2024, UNIBZ	INFR6	106.206,48€
Team member	2024-2025	Infra2024, UNIBZ	INFR7	64.292,74€
Team member	2024-2025	Young Researchers Call iNest, UNIBZ	UNI6	60.000,00€

Table 3: Awarded Grants as Principal Investigator and funded projects where I am a team member in the proposal. The amount indicates the funding of the overall project.

10 Research description

From the very beginning of my career, my research has primarily focused on sound and music computing, and computer science for preservation and access to historical audio documents and cultural heritage in general. More specifically, my work consists of research and development of innovative methodologies, and applications to preserve, analyse, and experience musical heritage. Additionally, my research has included the adoption of several technologies and methods extending to web and mobile interfaces, embedded systems, human-computer interaction and artificial intelligence. My work is highly multidisciplinary; during my research, I have collaborated with engineers (computer science, telecommunication, civil, and the like), as well as musicologists, archaeologists, archivists, psychologists, architects, earth scientists, and physicians.

10.1 Models, algorithms and interfaces for preserving, analyzing and accessing historical audio documents

My research interests are primarily focused on the development of models, algorithms and web and mobile interfaces for preserving, restoring, accessing and making use of historical audio recordings.

First projects

My first contribution to the field was the development of web and mobile interfaces during the project [UNI1]. These interfaces virtualise 78 rpm gramophone and tape recorders alongside their physical carriers to recreate the listening conditions of the time [J1, J2]. Further models and interfaces were developed for managing different kinds of audio content such as oral sources [UNI3] and music [UNI4]. All these interfaces need several tools for the detection of errors and the analysis of the multimedia content. For this reason, my research interest involves the development of automatic tools based on signal processing and machine learning techniques [J3, J5], tackling these complex problems.

IT4aREC – Innovative Tools and Algorithms for preserving and Archiving Analogue Audio RECORDINGS

I was the principal investigator (Table 3) of the IT4aREC project [UNI5]. It aims to design innovative algorithms and to develop new software tools for (a) validating digital preservation copies, (b) their restoration and analyses, (c) supporting the creation of archival units available to researchers and/or common audience and (d) evaluating the suitability of blockchain technologies for long-term preservation of audio recordings. It is a highly multidisciplinary project. The main achievements are the definition of a restoration workflow and filters for compensating speed and equalisation errors that occurred during the digitisation of audio open-reel tapes as well as for their validation. I collaborated with several national and international researchers and professionals, such as Prof. Emery Schubert (University of New South Wales, AU) and Dr. Kurt James Warner (during the collaboration, researcher at Izotope Inc., US).

IT4aREC is also closely linked to Archivio Vi.Vo. and FONTI 4.0 projects where I worked as a research assistant *assegnista di ricerca*. They are described in the following sections.

Archivio Vi.Vo. & CLARIN-IT

Archivio Vi.Vo. [NAT2] was an Italian project financed by the Region of Tuscany aiming to: (i) explore methods for long-term preservation and secure access to oral sources, and (ii) develop an infrastructure under the CLARIN-IT umbrella [NAT3], offering several services for scholars from different domains interested in oral sources [BC3]. In these projects, I developed the methodology, and I co-supervised the development of a platform for the preservation and access to oral sources collaborating with Prof. Silvia Calamai (University of Siena and Principal Investigator of the project), Dr. Monica Monachini (Institute of Computational Linguistics, CNR, Pisa and coordinator of CLARIN-IT), and Dr. Maria Francesca Stamuli (Soprintendenza archivistica e bibliografica della Toscana). This platform is deployed in the Italian Gruppo per l'Armonizzazione delle Reti della Ricerca (GARR) infrastructure as a service in the European Common Language Resources and Technology Infrastructure (CLARIN). Some algorithms and tools of IT4aREC were integrated into the platform.

FONTI 4.0 - Fruizione innovativa di fonti Orali digitalizzate mediante le Nuove Tecnologie dell'Industria creativa 4.0

The project FONTI 4.0 [INT2] was funded by the Veneto Region through European Social Funding. The goal was to automatise the extraction of information from analogue oral sources through an automatic transcription chain. The steps of the project were: (1) detecting and correcting errors that could occur during the digitised recordings (equalisation and speed errors), (2) transcribing the content through existing commercial software, (3) analysing the transcribed text to identify information such as date, location, important names, etc., and (4) developing an interface for searching and playing digitised oral sources. In this project, I co-supervised the development of the overall transcription chain for automatically analysing the contents of historical oral sources. This project adopted algorithms of IT4aREC for the restoration of digitised recordings. I collaborated with Prof. Frederic Kaplan (head of Digital Humanities Laboratory of École Polytechnique Fédérale de Lausanne - EPFL), Dr. Alain Dufaux (Operation & Development Director of the Cultural Heritage & Innovation Center, EPFL, CH) and Fondazione Giorgio Cini, Venezia.

Vademecum per il trattamento delle fonti orali

Since 2018, I am part of an Italian national working group aiming to define the guidelines for the production, preservation and valorization of oral sources named as “Vademecum per il trattamento delle fonti orali” (<http://www.icar.beniculturali.it/attivita-e-progetti/progetti-in-collaborazione/vademecum-per-il-trattamento-delle-fonti-orali>) [NAT4]. This multidisciplinary group involves (a) Italian universities such as Ca’ Foscari University and University of Siena, (b) several Italian central institutes of the Ministry of Culture such as Direzione generale Archivi, Istituto centrale per gli archivi, Istituto centrale per i beni sonori e audiovisivi, Istituto centrale per il catalogo e la documentazione, as well as associations such as Associazione italiana di storia orale and Associazione italiana scienze della voce. I am a member of the “preservation of oral archives” and “use and re-use of oral sources” working groups.

CompMusic (ERC)

During my visiting period at the Music Technology Group (University Pompeu Fabra, Barcelona, Spain), I participated in the CompMusic project, working on the development and analysis of non-Western music corpora.

Despite the world’s richness in musical cultures, most of the research is centred on the music and metadata of our Western commercial music. CompMusic (compmusic.upf.edu) [INT1] wanted to break the huge research bias in music information research, by approaching musical information modelling from a multicultural perspective. It aimed at advancing the state of the art while facilitating the discovery and reuse of music produced outside the Western commercial context. CompMusic investigated some of the most consolidated non-western classical music traditions, Indian (Hindustani, Carnatic), Turkish-Arab (Ottoman, Andalusian), and Chinese (Han), developing the needed computational models to bring their music into the current globalized information framework. My main achievement was the creation of a corpus of Arab-Andalusian music [C7] and the development of the first algorithm in literature of Nawba recognition based on music score analysis [C6].

10.2 Standards for artificial intelligence

MPAI - Moving Picture, Audio and Data Coding by Artificial Intelligence

From February 2021 to June 2023, I was a member of the Moving Picture, Audio and Data Coding by Artificial Intelligence (MPAI) community (mpai.community) aiming at Artificial Intelligence-enabled digital data compression specifications [INT3]. I was part of the Context-based Audio Enhancement (CAE) and Multimodal Conversation (MMC) standards groups, mainly working on the Audio Recording Preservation (ARP) standardization, which realised a standard adopted by IEEE P3302 standard. The community involves researchers and companies all around the world, but the most valuable collaborators were Leonardo Chiariglione (co-founder of Moving Picture Experts Group - MPEG - and MPAI president) and Prof. Marina Bosi (University of Stanford, US).

10.3 Design and development of interactive museum installations

In recent decades the role of many museums has evolved from preserving and displaying artefacts to that of institutions focused on the education and entertainment of visitors. To this end, museum curators strive to design and implement exhibitions that offer an educational, yet also enjoyable, experience. For these reasons, interactive multimedia installations, augmented and virtual reality applications, and

mobile apps are increasingly widespread [C1, J6]. Often historical or modern musical instruments are presented in museums and exhibitions. A visitor must physically interact with musical instruments in order to properly understand them. Usually, this is impossible as preservation policies make the artefact inaccessible, or because degradation makes the instrument unusable. I worked to transpose the concepts of passive and active preservation from historical audio documents to the field of physical artefacts and musical instruments. In this context, passive preservation is meant to preserve the original instruments from external agents without altering their components, while active preservation involves a new design of the instruments using new components or a virtual simulation of the instruments [J6]. The project “Archaeology and virtual acoustics” [UNI2] provided an interesting case study. It concerned an exceptionally well-preserved ancient pan flute, most likely of Greek origin, recovered in Egypt in the 1930s and now exhibited in the Museum of Archaeological Sciences and Art (MSA), University of Padova [C2, J6]. It was during this project that I entered this multidisciplinary research area, specifically by managing the development of an interactive multimodal museum installation that virtually recreates the instrument, and communicates different aspects related to history, iconography, acoustics, musicology, and several other disciplines. This installation is now permanently exhibited at MSA.

Another important achievement in this field is the *Parco Multimediale delle Mura di Padova* (PAMU - www.parcomurapadova.it) [NAT1]. The project was funded by the Veneto Region (*Parco Multimediale delle Mura di Padova PAMU, valorizzazione di paesaggi e percorsi culturali in un’ottica creativa e innovativa* - ESF 2014-2020) and it was realized thanks to the synergies between IUAV University, the University of Padova and four companies. As an external collaborator, I contributed to the development of the multimedia installations of the Museum of the Walls of Padua [J4].

10.4 Other research activity - EMotion project

As an external collaborator, I participated in the “Electric Mobility in L-Category Vehicles for all generations” (EMotion) project [INT4] (funded by the Austrian Climate and Energy Fund - “Zero Emission Mobility” programme - 3.0 million). The project aims to develop new clean and energy-efficient electric L-category vehicles. I collaborated with the company KTM to develop a new dashboard for the prototype of the vehicles that were developed.

10.5 Software and multimedia installations

The most relevant software and installations that I developed during my research activity are:

1. REWIND (acronym for “Restoring the Experience: Web Interfaces for accessiNg Digitized recordings”), a software that consists of two web interfaces that respectively virtualize gramophone for 78 rpm digitized discs and a reel-to-reel audio tape recorder. The code of this software is open source and freely downloadable²³. The app is described in [J2].
2. REMIND (acronym for “Restoring the Experience: Mobile INterfaces for accessing Digitized recordings”), a mobile app that aims at re-creating the experience of an open-reel audio tape recorder and provides several tools to explore metadata and contextual information, as well as a multi-track manager. The code of this software is open source and freely downloadable⁴. The app is described in [J1].

²Gramophone: github.com/CSCP Padova/rewind_gramophone.

³Tape recorder: github.com/CSCP Padova/rewind_taperecorder

⁴github.com/CSCP Padova/remind

3. An interactive multimedia installation for the valorization of an ancient Pan flute. The installation is permanently exhibited in the Museum of Archaeological Sciences and Art (MSA), University of Padova. The peculiarity of this installation is the possibility to play a virtual Pan flute by blowing in the 14 holes of the installation representing the pipes of the musical instrument or through a touch interface [J6].
4. Four Jupyter notebooks in Python to download and analyse data and metadata from the Arab Andalusian Corpus of Dunya. The code of this software is open source and freely downloadable⁵. The notebooks are described in [C6, C7].

11 Other research activities

11.1 Editorial Activities

Since May 2024, I am **Associate Editor** of the international and peer-reviewed ACM *Journal on Computing and Cultural Heritage* (dl.acm.org/journal/jocch) - Q2 Computer Science Applications, Information Systems, Computer Graphics and Computer-Aided Design, and Q1 in Conservation.

I am **Guest Editor** of the international and peer-reviewed journal *Heritage* (Q1 Archaeology and Q1 Conservation). On the 19th of March 2023, the special issue “Computational Methodologies Supporting the Preservation, Access and Re-use of Sound and Musical Cultural Heritage” was launched. The co-guest editor of this special issue is the prof. Sergio Canazza (Università degli Studi di Padova). Link: www.mdpi.com/journal/heritage/special_issues/RG87PD855U

I was **Topic Editor and Guest Associate Editor** of the international and peer-reviewed journal *Frontiers in Signal Processing* (indexed in Web of Science Emerging Sources Citation Index - ESCI). On the 23rd of September 2022, the topic **Preservation and Exploitation of Audio Recordings: from Archives to Industries** was launched. This topic was completed on the 9th of July 2024. The other topic editors are Prof. Sergio Canazza (University of Padova), Prof. Emery Schubert (University of New South Wales, Sydney) and Prof. Marina Bosi (Stanford University).

The reference to the editorial is [E2]. Research topic link: www.frontiersin.org/research-topics/47296/preservation-and-exploitation-of-audio-recordings-from-archives-to-industries

11.2 Program committees and review activities

I worked as a **reviewer** for the following scientific journals and books:

- IEEE Access
- ACM Journal on Computing and Cultural Heritage
- Multimedia Systems (Springer)
- IEEE Robotics and Automation Letters
- Applied Science (MDPI)
- Magazén - International Journal for Digital and Public Humanities
- CLARIN Book

⁵github.com/MTG/andalusian-corpus-notebooks

- Immagine. Note di storia del cinema.

I am part of the **Program Committees** of the following conferences:

PC1 ACM CHI conference on Human Factors in Computing Systems - 2024, 2025

PC2 Sound and Music Computing Conference (SMC) – 2019-2024

PC3 Workshop on Ubiquitous Music (UbiMus) – 2020-2023

PC4 8th International Conference, Culture and Computing (C&C) 2020, Held as Part of the 22nd HCI International Conference, HCII 2020, Copenhagen – 2020

PC5 AudioMostly – 2020, 2023 and 2024

PC6 Colloquio di Informatica Musicale (CIM) – 2016, 2018, 2020 and 2024

During the conference PC4, I was Chair of the session: “Culture and Computing - Designing Cultural Heritage Explorations”.

I also worked as a reviewer for the following conferences:

- CLARIN Annual Conference, Pisa – 2020 and 2021
- Convegno Associazione Italiana Scienze della Voce, AISV, Arezzo - 2019

11.3 Invited and selected presentations and conference organisation

On 22nd March 2021, I participated as **invited speaker** in one of the seminars on forensic audio organised by the forensic group of the Italian Association of Voice Science (AISV), titled: *L'audio forense: prospettive interdisciplinari*. (ENG: Forensic Audio: interdisciplinary perspectives). My talk title was: *La digitalizzazione di fonti sonore: conservazione, analisi e accesso* (ENG: The digitization of oral sources: preservation, analysis, access). Presentation link (ITA): www.youtube.com/watch?v=ndVUM4_wHTs&ab_channel=ForensicsGroupChannel

I also co-organised **2 virtual courses** of the Archive Online Academy (AOA) financed by the Giorgio Cini Foundation (Venice, Italy):

- Sep 2021. FONTI 4.0 – Preservation, transcription and access of analog oral sources (www.cini.it/en/events/archive-online-academy-living-lab-how-to-manage-oral-sources), composed of a workshop with national and international professors on digital humanities, language technology and oral sources fields, 4 lectures and 3 virtual laboratories (98 enrolled people).
- Jun 2020 - Jul 2021. Preservation of historical sound documents (www.cini.it/en/events/preservation-of-historical-sound-documents), composed of 4 lectures and 3 virtual laboratories (50 enrolled people).

In these courses, I also participated as **speaker** with the following talks:

- 2021 FONTI 4.0 – Preservation, transcription, and access of analog oral sources. Talk titles: (a) Relation between the preservation copy and the archival unit, (b) Restoration laboratory on historical audio recordings, (c) Transcription laboratory, (d) Long-term preservation and access. Website link: www.cini.it/en/events/archive-online-academy-living-lab-how-to-manage-oral-sources

- 2020 - Preservation of historical sound documents. Talk title: *Conservazione a lungo termine dei supporti analogici e delle digitalizzazioni* (ENG: Long-term preservation of analogue support and their digitization). Website link:

www.cini.it/en/events/preservation-of-historical-sound-documents

I presented **4 posters** and **4 oral contributions** to national and international conferences:

- 30/06/2022. Poster presentation (selected, National Conference) at the Eighth Italian Conference on Computational Linguistics (virtual edition) [C19].
- 30/06/2021. Poster presentation (selected, International Conference) at the 18th Sound and Music Computing Conference (virtual edition) [C16].
- 06/10/2020. Oral presentation (selected, International Conference) at the CLARIN Annual Conference (virtual edition) [C13].
- 26/06/2020. Poster Presentation (selected, International Conference) at the 17th Sound and Music Computing Conference (virtual edition) [C11].
- 06/07/2018. Oral presentation (selected, International Conference) at the 15th Sound and Music Computing Conference, in Limassol, Cyprus [C6].
- 14/11/2017. Oral presentation (selected, National Conference) at the 11th Italian Workshop on Artificial Intelligence for Cultural Heritage (AI*CH), part of the International Conference of the Italian Association for Artificial Intelligence AI*IA, in Bari, Italy [C5].
- 30/07/2015. Poster presentation (selected, International Conference) at the 12th Sound and Music Computing Conference, in Maynooth, Ireland [C2].
- 20/10/2014. Oral presentation (selected, National Conference) at the XX Colloquio di Informatica Musicale (Italian Sound and Music Computing conference), in Rome, Italy [C1].

11.4 Startup, standards and technological transfer

The following title has been evaluated as a valid title for the *Abilitazione scientifica nazionale - II fascia* in the application for the sector INF/01 VI *quadrimestre 2021/23*.

- 2022. I am a **founder member** of *MPAI Store Limited*, a Company Limited by Guarantee (Company number SC740055), incorporated on the 2nd of August 2022 and registered in Dundee, Scotland (find-and-update.company-information.service.gov.uk/company/SC740055). It is a not-for-profit company with the mission to collect, verify, certify, and make available the Implementations of technical specifications developed by the Moving Picture, Audio and Data Coding by Artificial Intelligence (MPAI - mpai.community), under licence by MPAI.
- 2021 - 2023. Member of the Context-based Audio Enhancement (CAE) and Multimodal Conversation (MMC) standard groups of MPAI community. I have contributed to the development of the **MPAI-CAE standard**⁶ [O2], which is a collection of four Use Cases specifying AI-based technologies for audio-related applications including entertainment, communication, post-production,

⁶mpai.community/standards/mpai-cae

teleconferencing, and restoration [J9]. This standard is adopted by IEEE Context-based Audio Enhancement Working Group (CAEWG) as **IEEE P3302-2022 - IEEE Standard Adoption of Moving Picture, Audio and Data Coding by Artificial Intelligence (MPAI) Technical Specification Context-based Audio Enhanced (CAE) Version 1.4** (iee.org/iee/3302/11006/).

- 2020 - 2021. Collaboration with Regesta.exe s.r.l. (under the project Archivio Vi.Vo) in order to develop innovative functionalities for the archival software xDams (www.xdams.org).
- 2020 - 2021. Archive Online Academy (AOA) course on Audio Documents Preservation (www.cini.it/eventi/archive-online-academy), financed by Fondazione Giorgio Cini and organised by AudioInnova s.r.l., a spin-off of the University of Padova (www.audioinnova.com)
- 2015 - 2020. Technology transfer activity collaborating with AudioInnova s.r.l.
- 2015, 2016, 2019. Participation at European night of researchers.
- 2015. Dissemination seminars in high school Tito Livio (Padova).

11.5 Memberships

I am a **member** of the Association for Computing Machinery (ACM) and Institute of Electrical and Electronics Engineers (IEEE), and **associate member** of the Audio Engineering Society (AES).

I am part of the **Italian Committee for Oral Sources** (*Tavolo permanente per le fonti orali*) that involves numerous Italian Central Institutions of the Ministry of Cultural Heritage (Direzione generale archivi, Istituto centrale per i beni sonori e audiovisivi, Istituto centrale per il catalogo e la documentazione), scientific associations, foundations, and universities and aims to define good practices for preserving and valorising oral sources [O1].

I was a **member** of the Moving Picture, Audio and Data Coding by Artificial Intelligence (**MPAI**) community (2021-23), where I was part of the **Communication Advisory Committee**.

Part IV

Publications

12 List of publications

The overall scientific production consists of **45 contributions**: 12 peer-reviewed international journal articles, 23 peer-reviewed papers on national and international conference proceedings, 2 books, 3 book chapters, 2 editorials, the PhD thesis, an international standard, and a national guideline.

Published peer-reviewed journal papers

- J12** M. Bosi, S. Canazza, **N. Pretto**, A. Russo, and M. Spanio. From Tape to Code: An international AI-based standard for audio cultural heritage preservation Don't play that song for me (if it's not preserved with ARP!). *IEEE Access*, vol. 12, pp. 152544-152558, 2024. doi: 10.1109/ACCESS.2024.3474529.
- Scimagojr index 2023 (2024 is not available yet): Q1 - Computer Science (miscellaneous); Q1 - Engineering (miscellaneous); Q1 - Materials Science (miscellaneous)
- J11** A. Fiordelmondo, S. Canazza, and **N. Pretto**. Reactivating and preserving interactive multimedia artworks: An analogue performance from the Seventies. *ACM Journal on Computing and Cultural Heritage (JOCCH)*. 17(2), article 27, 2024. doi: 10.1145/3647995.
- Scimagojr index 2023 (2024 is not available yet): Q1 - Conservation; Q2 - Computer Graphics and Computer-Aided Design, Computer Science Applications, Information Systems
- J10** **N. Pretto**, N. Dalla Pozza, A. Padoan, A. Chmiel, K. J. Werner, A. Micalizzi, E. Schubert, A. Roda, S. Milani, and S. Canazza. A Workflow and Digital Filters for Correcting Speed and Equalization Errors on Digitized Audio Open-Reel Magnetic Tapes. *Journal of the Audio Engineering Society* 70(6), 495-509, 2022. URL: www.aes.org/e-lib/browse.cfm?elib=21798.
- Scimagojr index 2022: Q1 - Music; Q2 - Engineering (miscellaneous)
- J9** A. Basso, P. Ribeca, M. Bosi, **N. Pretto**, G. Chollet, M. Guarise, M. Choi, L. Chiariglione, R. Iacoviello, F. Banterle, A. Artusi, F. Gissi, A. Fiandrotti, G. Ballocca, M. Mazzaglia, and S. Moskowitz. AI-Based Media Coding Standards. *SMPTE Motion Imaging Journal*, 131 (4), 10-20, 2022, doi: 10.5594/JMI.2022.3160793.
- Scimagojr index 2022: Q3 - Media technology; Q4 - Electrical and Electronic Engineering
- J8** S. Canazza, E. Schubert, A. Chmiel, **N. Pretto**, and A. Rodà. The magnetic urtext: Restoration as music interpretation. *Frontiers in Psychology* 13:844009, 2022. doi: 10.3389/fpsyg.2022.844009.
- Scimagojr index 2022: Q2 - Psychology (miscellaneous)
- J7** **N. Pretto**, E. Micheloni, A. Chmiel, N. Dalla Pozza, D. Marinello, E. Schubert, and S. Canazza. Multimedia Archives: New Digital Filters to Correct Equalization Errors on Digitized Audio Tapes. *Advances in Multimedia*, Hindawi, 2021. doi: 10.1155/2021/5410218.
- Scimagojr index 2021: Q3 - Computer Science (miscellaneous)

- J6** N. Pretto, E. Micheloni, S. Gasparotto, C. Fantozzi, G. De Poli, and S. Canazza. Technology-enhanced interaction with cultural heritage: an antique Pan flute from Egypt. *ACM Journal on Computing and Cultural Heritage (JOCCH)* 13 (2), 1-20, 2020. doi: 10.1145/3355395.
- Scimagojr index 2020: Q1 - Conservation; Q2 - Computer Graphics and Computer-Aided Design; Q3 - Computer Science Applications, Information Systems
- J5** N. Pretto, C. Fantozzi, E. Micheloni, V. Burini, and S. Canazza. Computing Methodologies Supporting Preservation of Electroacoustic Music from Analog Magnetic Tape. *Computer Music Journal*, 42(4):59-74, 2018. ISSN: 0148-9267. doi: 10.1162/comj_a_00487.
- Scimagojr index 2018: Q1 - Music; Q2 - Media Technology; Q3 - Computer Science Applications
- J4** E. De Feo, E. A. Venier, A. Russo, M. Breschigliaro, and N. Pretto. PAMU: A Multimedia Park to Enhance the Renaissance Walls of Padua. *DISEGNARECON* 11 (21), 7-1-7.19, 2018. URL: disegnarecon.univaq.it/ojs/index.php/disegnarecon/article/view/459/334.
- Scimagojr index 2019 (2018 index not available): Q1 - Visual Arts and Performing Arts; Q2 - Architecture; Q3 - Urban Studies
- J3** S. Verde, N. Pretto, S. Milani, and S. Canazza. Stay true to the sound of history: Philology, phylogenetics and information engineering in musicology. *Applied Sciences*, 8(2), 2018. ISSN 2076-3417. doi: 10.3390/app8020226.
- Scimagojr index 2018: Q1 - Engineering (miscellaneous); Q2 - Fluid Flow and Transfer Processes, Process Chemistry and Technology, Materials Science (miscellaneous), Instrumentation; Q3 - Computer Science Applications
- J2** C. Fantozzi, F. Bressan, N. Pretto, and S. Canazza. Tape music archives: from preservation to access. *International Journal on Digital Libraries*, 18(3):233-249, September 2017. ISSN 1432-1300. doi: 10.1007/s00799-017-0208-8.
- Scimagojr index 2017: Q2 - Library and Information Sciences
- J1** S. Canazza, C. Fantozzi, and N. Pretto. Accessing tape music documents on mobile devices. *ACM Transactions Multimedia Computing Communications and Applications (TOMM)*, 12 (1s):20:1-20:20, October 2015. ISSN 1551-6857. doi: 10.1145/2808200.
- Scimagojr index 2015: Q2 - Computer Networks and Communications, Hardware and Architecture

International and national peer-reviewed conference papers

- C23** Z. Çımar, A. Russo, M. Spanio, N. Pretto, S. Canazza. Filming the sound: Anomaly Detection on Audio Tape Recordings using Computer Vision Algorithms. In *Proceedings of 3rd Workshop on Artificial Intelligence for Cultural Heritage*, co-located with the *23rd International Conference of the Italian Association for Artificial Intelligence (AIXIA 2024)*, Bozen (under publication)
- C22** K. F. Mwaita, A. Carrasco-Pena, N. Pretto, T. Preindl, A. Pointner, N. Munzenrieder, and M. Haller. Capacitive Thin-Film User Interfaces on Stones. In *Proceedings of IEEE International Flexible Electronics Technology Conference 2024 (IFETC)*, Bologna (under publication)
- C21** M. Bosi, S. Canazza, A. Russo Pretto, N. Pretto, and L. Chiariglione. An MPAI/IEEE International Standard for Audio: Overview of CAE Audio Recording Preservation (ARP) Technology.

- In *Proceedings of AES International Conference on Audio Archiving, Preservation & Restoration*, Culpeper, Virginia, US, 2023. URL: www.aes.org/e-lib/browse.cfm?elib=22136.
- C20** F. Carnovalini, A. Rodà, **N. Pretto**, and S. Canazza. We have other paintings as well! Recommending non-popular cultural heritage in museum visits. *Extended Intelligence for Cultural Engagement (ExICE)*, Bologna, 2023. doi: 10.5281/zenodo.7973666.
- C19** R. B. Luzietti, **N. Pretto**, F. Kaplan, A. Dufaux, and S. Canazza. FONTI 4.0: evaluating speech-to-text automatic transcription of digitized historical oral sources. *Eighth Italian Conference on Computational Linguistics*, Milan, 2022. URL: ceur-ws.org/Vol-3033/paper45.pdf.
- C18** L. Chiariglione, A. Basso, P. Ribeca, M. Bosi, **N. Pretto**, G. Chollet, M. Guarise, M. Choi, F. Yassa, R. Iacoviello, A. Artusi, F. Banterle, G. Saccardi, A. Fiandrotti, G. Ballocca, M. Mazzaglia, M. Rosano, and S. Moskowitz. AI-based media coding and beyond. In *Proceedings of IBC conference*, 2021. URL: www.dei.unipd.it/~prettoni/paper/2021_ibc_mpai_published.pdf.
- C17** **N. Pretto**, N. Dalla Pozza, A. Padoan, A. Chmiel, K. J. Werner, A. Micalizzi, E. Schubert, A. Rodà, S. Milani, and S. Canazza. 2021. A workflow and novel digital filters for compensating speed and equalization errors on digitized audio open-reel tapes. In *Proceedings of Audio Mostly 2021*, AM21, Trento, Italy. doi: 10.1145/3478384.3478409.
- C16** M. Bosi, **N. Pretto**, M. Guarise, and S. Canazza. Sound and music computing using AI: Designing a standard. In *Proceedings of the 18th Sound and Music Computing Conference - SMC21*, Virtual Edition, 2021. doi: 10.5281/zenodo.5045003.
- C15** S. Calamai, **N. Pretto**, M.F. Stamuli, D. Piccardi, G. Candeo, S. Bianchi, and M. Monachini. Community-Based Survey and Oral Archive Infrastructure in the Archivio Vi.Vo. Project. *Selected Papers from the CLARIN Annual Conference 2020*, 2021. URL: ecp.ep.liu.se/index.php/clarin/article/view/7/7.
- C14** M. Monachini, M.F. Stamuli, S. Calamai, **N. Pretto**, and S. Bianchi. The grey-side of audio archives. *Conference of 22nd International Conference on Grey Literature: Applications of Grey Literature for Science and Society*, GL 2020, Virtual Edition, 2020. URL: www.dei.unipd.it/~prettoni/paper/2020_GL2020_grey_published.pdf.
- C13** S. Calamai, **N. Pretto**, M. Monachini, M.F. Stamuli, S. Bianchi, and P. Bonazzoli. Building a home for Italian audio archives. *Proceedings of CLARIN Annual Conference 2020*. Eds. C. Navarretta and M. Eskevich. Virtual Edition, 2020. URL: www.dei.unipd.it/~prettoni/paper/2020_CLARIN2020_published.pdf.
- C12** VN. Vitale, M. Olivieri, A. Origlia, **N. Pretto**, A. Rodà, and F. Cutugno. Acoustic Experiences for Cultural Heritage Sites: A Pilot Experiment on Spontaneous Visitors' Interest. In *Culture and Computing. HCII 2020. Lecture Notes in Computer Science*, vol 12215. Springer, Cham. doi: 10.1007/978-3-030-50267-6_23.
- C11** **N. Pretto**, A. Russo, F. Bressan, V. Burini, A. Rodà, and S. Canazza. Active preservation of analogue audio documents: A summary of the last seven years of digitization at CSC, in *Proceedings of the 17th Sound and Music Computing Conference - SMC20*, Torino, 2020. doi: 10.5281/zenodo.3898905.

- C10** A. Russo, **N. Pretto**, A. Rodà, and S. Canazza. L'informatica per la gestione e la conservazione di informazioni acustiche (musica e voce). In *Proceedings of Associazione Italiana Scienze della Voce - Studi AISV*, 2019. URL: dei.unipd.it/~prettoni/paper/RussoAISV.pdf.
- C9** S. Canazza, C. Fantozzi, **N. Pretto**, A. Rodà, A. Chmiel, and E. Schubert. Quelle voci poco fa: l'intelligenza artificiale a contrastare l'eclisse delle memorie sonore. *1st Convegno Nazionale CINI sull'Intelligenza Artificiale (Ital-IA)*, Rome, IT, 2019. URL: ital-ia.it/submission/74/paper.
- C8** M. Mandanici, F. Altieri, **N. Pretto**, M. Munaro, S. Canazza, and E. Menegatti. The Good or Bad? Game: Stimulating Listening Skills through Playful Engagement. In *Proceedings of the 4th EAI International Conference on Smart Objects and Technologies for Social Good*, pages 177-182, Bologna, IT, 2018. ACM. ISBN: 978-1-4503-6581-9. doi: 10.1145/3284869.3284917.
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Niccolò Pretto