

Nicolas Bouillot, Ph.D.

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EMPLOYMENT

CURRENT
FEB 2017 | Research codirector
SOCIETY FOR ARTS AND TECHNOLOGY [SAT], Montreal,
Metalab department
Leading a lab of 11 members (with Emmanuel Durand); definition of the strategic research axes; development of a short, medium and long term vision for the research; contribution to the elaboration of an intellectual property strategy based on the development of free software; design and implementation of scientific communication strategy; design and writing of submissions; development of research partnerships with artists, researchers or other types of partners development of work processes; project management and task prioritization; team evaluations; contribution to the creation of two innovation departments (valorization and immersive online dissemination); management and team building for the realization of research projects; participation in the writing, follow-up of the writing and submission of grant applications; definition and management of the actions of popularization and scientific communication of the research work; writing and management of the budgets; participation in the strategic decision-making process of [SAT]; recruitment and follow-up of agents; participation in the valorization process of Metalab's open source software

CURRENT
JAN 2012 | Researcher/developer
SOCIETY FOR ARTS AND TECHNOLOGY [SAT], Montreal,
Metalab department
Multidisciplinary research in immersive audio and telepresence; writing of scientific papers; presentation during scientific conferences; scientific and technological watch on research topics; design of interoperable software architectures; initiation and lead developer of software libraries: shmdata (agnostic stream sharing between applications) and switcher (real-time integration environment for low latency live transmission of multiple data channels); initiation of the spatialization software SATIE (Spatial Audio Toolkit for Immersive Environments); prototypes development and design of technical demonstrations; production of demonstration videos; invention of immersive audio devices; musical composition and performance for illustration of research; implementation and participation in the code review process; technical documentation; network infrastructure diagnosis and debugging; implementation of continuous integration pipeline; assisting artists in performance and prototype production; job writing, interviewing and onboarding new team members; supervision of multidisciplinary internships; production of code refactoring analysis; deployment and building of project management tools and work process documentation; design and delivery of technical training

FEB 2012 | Research associate & post-doctoral researcher
JAN 2010 | MCGILL UNIVERSITY, Montreal,
Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT)
Design and development of a streaming server delivering synchronized multichannel content to the web; participation to development and presentation of biannual demonstrations to *Canada's advanced research and innovation network* (CANARIE); network protocol tuning and monitoring for long distance transmission; organization and completion of experiment targeting automated audio analysis for musical gesture recognition; design and development of an audio/score alignment software; development of interactive web application; student supervision; scientific communication.

DEC 2009 SEPT 2007	Post-doctoral researcher MCGILL UNIVERSITY, Montreal, Centre for Intelligent Machines (CIM) Design and development of a low-latency audio streaming protocol; design and development of a packet rate congestion avoidance algorithm; architectural design and implementation of outdoor mobile multiuser applications; objective measure of streaming engines Quality of user Experience (QoE); live and simulated network performance evaluation; software integration for mobile devices; comparison of localization technologies accuracy; design and development of a mobile augmented guitar; demonstration of mobile interactive applications; scientific communication.
AUG 2007 SEPT 2005	Lecturer CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS, Paris, Centre d'étude et recherche en informatique et communication (CEDRIC) Design and development of a consistency service for a mobile multiplayer game; design and development of a distributed software enabling remote & synchronized musical interaction; design and completion of user experiment; public demonstrations of a multi-location distributed musical interaction system; university level course writing and teaching; student supervision; scientific communication.
AUG 2005 SEPT 2002	Research Fellow CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS, Paris, Centre d'étude et recherche en informatique et communication (CEDRIC) Design and development of a distributed musical interaction system; design of consistency models for distributed interactive application; performance evaluation of circular buffer in streaming application; design of consistency integration into multiplayer distributed games; organization and completion of a public demonstration at the <i>Institut de Recherche et Coordination Acoustique/Musique</i> (IRCAM); course writing and teaching; student supervision; scientific communication.

EDUCATION

- Nov 2006 | Ph.D. in COMPUTER SCIENCE, obtained with distinction
CONSERVATOIRE NATIONAL DES ARTS ET MÉTIERS, Paris
Thesis: “Consistency in distributed interactive multimedia applications, from distributed musical interaction to online multiplayer games”
Advisor: Eric Gressier-Soudan
Reporters: Jeremy R. Cooperstock, Isabelle Demeure, Michel Raynal
Assessors: Sophie Chabridon, Gérard Florin, Cécile Leprado, Stéphane Natkin, Jean Vareille
- AUG 2002 | D.E.A. (equivalent to a Master degree) in COMPUTER SCIENCE, obtained with distinction
UNIVERSITÉ PIERRE ET MARIE CURIE - PARIS VI
Thesis: “The distributed orchestra: system and network constraints evaluation and prototyping”
Advisor: Eric Gressier-Soudan
- AUG 2001 | Maîtrise (4th year university degree) in COMPUTER SCIENCE, obtained with distinction
UNIVERSITÉ DENIS DIDEROT – PARIS VII
Thesis: “Implementing Consensus over Failure Detectors”
Advisors: Carole Delporte and Hugues Fauconier
- AUG 2000 | Licence (3rd year university degree) in COMPUTER SCIENCE, obtained with distinction
UNIVERSITÉ DENIS DIDEROT – PARIS VII
- AUG 1999 | D.E.U.G. (2nd year university degree) in MATHEMATICS, PHYSICS AND COMPUTER SCIENCE, obtained with distinction
at UNIVERSITÉ DENIS DIDEROT – PARIS VII, Paris

Journals

- [1] Youness Salame, Pierre-Majorique Léger, Patrick Charland, Maÿlis Merveilleux Du Vignaux, Emmanuel Durand, **Nicolas Bouillot**, Mylène Pardoën, Marion Deslandes-Martineau, and Sylvain Sénécal. The effects of interactivity on learners' experience in a visually immersive display context. *Computers in the Schools*, 0(0):1–20, 2022.
- [2] **Nicolas Bouillot** and Michal Seta. The KaonCPT collective: building a musical culture of not-in-real-life performance through conducted live improvisation. *Organised Sound*, 2021.
- [3] Maÿlis Merveilleux Du Vignaux, Pierre-Majorique Léger, Patrick Charland, Youness Salame, Emmanuel Durand, **Nicolas Bouillot**, Mylène Pardoën, and Sylvain Sénécal. An exploratory study on the impact of collective immersion on learning and learning experience. *Multimodal Technologies and Interaction*, 5(4), 17, 2021. Received: 2 February 2021 / Revised: 23 March 2021 / Accepted: 29 March 2021 / Published: 7 April 2021.
- [4] **Nicolas Bouillot**. Type mosaicing with consultables and delegates. *Overload Journal*, (130), 2015. 5 pages.
- [5] **Nicolas Bouillot**. Make and forward consultables and delegates. *Overload Journal*, (127), 2015. 5 pages.
- [6] Adriana Olmos, **Nicolas Bouillot**, Trevor Knight, Nordhal Mabire, Josh Redel, and Jeremy R. Cooperstock. A high-fidelity orchestra simulator for individual musicians' practice. *Computer Music Journal*, 36(2), 2012. 18 pages.
- [7] Romain Pellerin, **Nicolas Bouillot**, Tatiana Pietkiewicz, Mike Wozniowski, Zack Settel, Eric Gressier-Soudan, and Jeremy R. Cooperstock. Soundpark: Exploring ubiquitous computing through a mixed reality multi-player game experiment. *Studia Informatica Universalis journal, special issue: bests papers of the conference NOTERE 2009*, 8(3), 2010. 21 pages.
- [8] **Nicolas Bouillot**, Elizabeth Cohen, Jeremy R. Cooperstock, Andreas Floros, Nuno Fonseca, Richard Foss, Michael Goodman, John Grant, Kevin Gross, Steven Harris, Brent Harshbarger, Joffrey Heyraud, Lars Jonsson, John Narus, Michael Page, Tom Snook, Atau Tanaka, Justin Trieger, and Umberto Zanghieri. AES White Paper AESTD1003V1: Best Practices in Network Audio. *Journal of the Audio Engineering Society*, 57(9), September 2009. 13 pages.
- [9] **Nicolas Bouillot** and Eric Gressier-Soudan. Consistency models for distributed interactive multimedia applications. *ACM Operating Systems Review*, 38(4), October 2004. 13 pages.
- [10] **Nicolas Bouillot**. The auditory consistency in distributed music performance: a conductor based synchronization. *Info/com Sciences for Decision Making (ISDM)*, 8(4), February 2004. 8 pages.

International conferences

- [1] Thomas Piquet, Hector Teyssier, Émile Ouellet-Delorme, Raphaël Duée, and **Nicolas Bouillot**. Two datasets of room impulse responses for navigation in 6 degrees of freedom: a symphonic concert hall and a former planetarium. In *25th International Conference on Digital Audio Effects DAFx20*, pages pp. 169–176, Vienna University of Music and Performing Arts (mdw), Austria, sep 2022.
- [2] Émile Ouellet-Delorme, Harish Venkatesan, Emmanuel Durand, and **Nicolas Bouillot**. Live Ray Tracing and Auralization of 3D Audio Scenes with vaRays. In *18th Sound and Music Computing Conference (SMC)*, Online, June 2021.
- [3] Zack Settel, Jean-Yves Munch, Gabriel Downs, and **Nicolas Bouillot**. Building Navigable Listening Experiences Based on Spatial Soundfield Capture: the case of the Orchestre Symphonique de Montréal playing Beethoven's Symphony No. 6. In *18th Sound and Music Computing Conference (SMC)*, Online, June 2021.
- [4] **Nicolas Bouillot** and Michał Seta. A scalable haptic floor dedicated to large immersive spaces. In *Proceedings of the 17th Linux Audio Conference (LAC-19)*, March 2019.

- [5] **Nicolas Bouillot**, Michał Seta, Émile Ouellet-Delorme, Zack Settel, and Emmanuel Durand. Rendering of heterogeneous spatial audio scenes. In *Proceedings of the 17th Linux Audio Conference (LAC-19)*, March 2019.
- [6] Julien Puget, Mylène Pardoën, **Nicolas Bouillot**, Emmanuel Durand, Michał Seta, and Pascal Bastien. Rapid prototyping of immersive video for popularization of historical knowledge. In *Proceedings of the Thirteenth International Conference on Tangible, Embedded, and Embodied Interaction, TEI '19*, New York, NY, USA, 2019. ACM.
- [7] Zack Settel, Peter Otto, Michał Seta, and **Nicolas Bouillot**. Dual rendering of virtual audio scenes for far-field surround multi-channel and near-field binaural audio displays. In *16th Biennial Symposium on Arts and Technology*, Ammerman Center for Arts and Technology at Connecticut College, New London, February 2018. 5 pages.
- [8] François U. Brien, Emmanuel Durand, Jérémie Soria, Michał Seta, and **Nicolas Bouillot**. In situ editing (EiS) for fulldomes. In *23rd ACM Symposium on Virtual Reality Software and Technology (VRST)*, Gothenburg, Sweden, November 2017.
- [9] **Nicolas Bouillot**, Zack Settel, and Michał Seta. SATIE: a live and scalable 3d audio scene rendering environment for large multi-channel loudspeaker configurations. In *New Interfaces for Musical Expression (NIME'17)*, Copenhagen, Denmark, 2017.
- [10] Zack Settel, **Nicolas Bouillot**, and Michał Seta. Volumetric approach to sound design and composition using SATIE: a high-density 3D audio scene rendering environment for large multi-channel loudspeaker configurations. In *15th Biennial Symposium on Arts and Technology*, Ammerman Center for Arts and Technology at Connecticut College, New London, February 2016. 8 pages.
- [11] Trevor Knight, **Nicolas Bouillot**, and Jeremy R. Cooperstock. Visualization feedback for musical ensemble practice: A case study on phrase articulation and dynamics. In *SPIE Conference on Visualization and Data Analysis (VDA)*, San Francisco, January 2012. 8 pages.
- [12] **Nicolas Bouillot**, Marcio Tomiyoshi, and Jeremy R. Cooperstock. Extended user control over multichannel content delivered over the web. In *AES 44th Conference on Audio Networking*, San Diego, USA, November 2011. 5 pages.
- [13] Adriana Olmos, Mathieu Brulé, **Nicolas Bouillot**, Mitchel Benovoy, Jeff Blum, Haijian Sun, Niels Windfeld Lund, and Jeremy R. Cooperstock. Exploring the role of latency and orchestra placement on the networked performance of a distributed opera. In *12th Annual International Workshop on Presence*, Los Angeles, November 2009. 9 pages.
- [14] **Nicolas Bouillot**, Mathieu Brulé, and J.R. Cooperstock. Performance metrics for network audio systems: methodology and comparison. In *127th Audio Engineering Society convention*, New York, October 2009. 9 pages.
- [15] Zack Settel, M. Wozniowski, **Nicolas Bouillot**, and Jeremy R. Cooperstock. Audio graffiti: A location based audio-tagging and remixing environment. In *International Computer Music Conference (ICMC)*, Montreal, August 2009. 4 pages.
- [16] Romain Pellerin, **Nicolas Bouillot**, Tatiana Pietkiewicz, Mike Wozniowski, Zack Settel, Eric Gressier-Soudan, and Jeremy R. Cooperstock. Soundpark: Towards highly collaborative game support in a ubiquitous computing architecture. In Springer-Verlag Lecture Notes in Computer Science, editor, *9th IFIP international conference on Distributed Applications and Interoperable Systems (DAIS'09)*, Lisbon, Portugal, June 2009. 14 pages.
- [17] **Nicolas Bouillot** and Jeremy R. Cooperstock. Challenges and performance of high-fidelity audio streaming for interactive performances. In *New Interfaces for Musical Expression (NIME'09)*, Pittsburgh, 2009. 6 pages.
- [18] **Nicolas Bouillot**, Mike Wozniowski, Zack Settel, and Jeremy R. Cooperstock. A mobile wireless augmented guitar. In *8th International Conference on New Interfaces for Musical Expression (NIME'08)*, Genoa, Italy, June 2008. 4 pages.
- [19] Mike Wozniowski, **Nicolas Bouillot**, Zack Settel, and Jeremy R. Cooperstock. Large-scale mobile audio environments for collaborative musical interaction. In *8th International Conference on New Interfaces for Musical Expression (NIME'08)*, Genoa, Italy, June 2008. 6 pages.

- [20] Mike Wozniewski, **Nicolas Bouillot**, Zack Settel, and Jeremy R. Cooperstock. An augmented reality framework for wireless mobile performance. In *5th International Mobile Music Workshop*, Vienna, Austria, May 2008. 2 pages.
- [21] **Nicolas Bouillot**. nJam user experiments: enabling remote musical interaction from milliseconds to seconds. In *New Interfaces for Musical Expression (NIME'07)*, New York, June 2007. 6 pages.
- [22] **Nicolas Bouillot**. Fast event ordering and perceptive consistency in time sensitive distributed multiplayer games. In *7th International Conference on Computer Games (CGAMES'2005)*, Angoulême, France, November 2005. Q. Mehdi et N. Gough. 7 pages.
- [23] Julien Cordry, **Nicolas Bouillot**, and Samia Bouzeffrane. Performing real-time scheduling in an interactive audio-streaming application. In *ICEIS'05, International Conference on Enterprise Information Systems*, Miami, May 2005. 10 pages.
- [24] Hans-Nikolas Locher, **Nicolas Bouillot**, Erwan Becquet, François Dechelle, and Eric Gressier-Soudan. Monitoring the distributed virtual orchestra with a CORBA based object oriented real-time data distribution service. In Springer-Verlag Lecture Notes in Computer Science, editor, *DOA'03, International Symposium on Distributed Object Application*, Catania, Italy, November 2003. 12 pages.

Book

- [1] **Nicolas Bouillot**. *Cohérence et Applications Multimédia Interactives Distribuées: du concert réparti sur Internet aux jeux multi-joueurs en réseau*. Éditions universitaires européennes edition, 2010. ISBN: 978-6131511851. 220 pages.

Patent

- [1] Luc Courchesne, Bruno Roy, Emmanuel Durand, Mike Wozniewski, and **Nicolas Bouillot**. Method, system and apparatus for capture-based immersive telepresence in virtual environment, March 2015. WO Patent App. PCT/CA2014/050,888.

Workshop

- [1] Émile Ouellet-Delorme, Emmanuel Durand, Marie Ève Dumas, Michał Seta, **Nicolas Bouillot**, and Patrick Dupuis. Rapid prototyping of an immersive audiovisual installation. In *Immersion Experience Symposium (iX), aires de jeux 360*, [SAT] Montréal, May 2019.
- [2] **Nicolas Bouillot** and Michał Seta. Building distributed graph of live audio/video/data streaming with switcher/shmdata, puredata and your application. Linux Audio Conference, IEM, Graz, Austria, May 2013. (2 hours).

Conferences in French

- [1] Romain Pellerin, **Nicolas Bouillot**, Tatiana Pietkiewicz, Mike Wozniewski, Zack Settel, and Eric Gressier-Soudan. Soundpark: Exploring ubiquitous computing through a mixed reality multi-player game experiment. In *9^{ème} Conférence Internationale sur les NOuvelles TEchnologies de la RÉpartition, (NOTERE'09)*, Montreal, Canada, July 2009. 7 pages.
- [2] Julien Cordry, **Nicolas Bouillot**, and Samia Bouzeffrane. Bossa et le concert virtuel réparti, intégration et paramétrage souple d'une politique d'ordonnancement spécifique pour une application multimédia distribuée. In *RTS'05, 13th International conference on Real time Systems*, Paris, April 2005. 26 pages.
- [3] **Nicolas Bouillot**. Le modèle de cohérence perceptive pour les applications multimedia interactive et distribuées. In *CDUR'05, Journées Francophones sur la cohérence des Données en Univers Réparti*, Paris, November 2005. 6 pages.
- [4] **Nicolas Bouillot**. Un algorithme d'auto synchronisation distribuée de flux audio dans le concert virtuel réparti. In *CFSE 3, Conférence Française sur les Systèmes d'Exploitation*, La Colle sur Loup, France, October 2003. 12 pages.

- [5] **Nicolas Bouillot**. Une architecture pour le jeu musical réparti avec jMax et RTP. In *MANifestation des JEunes Chercheurs en Sciences et Technologies de l'Information et de la Communication (MAJEC-STIC'03)*, Marseilles, France, October 2003. 6 pages.

Other research papers

- [1] **Nicolas Bouillot**. *La cohérence dans les applications multimédia interactives : du concert réparti sur Internet aux jeux multi-joueurs en réseau*. PhD thesis, Conservatoire National des Arts et Métiers (CNAM), Paris, November 2006. 192 pages.
- [2] Samundeswary Ramachandra and **Nicolas Bouillot**. Diffusion multicast et cache multimédia pour le concert virtuel réparti : Expérimentations avec pastry/splitstream/past. Technical report, CEDRIC-CNAM, June 2006. 7 pages.
- [3] Remy Bonafous, **Nicolas Bouillot**, Hans-Nicolas Locher, Joël Berthelin, François Déchelle, and Éric Gressier-Soudan. The distributed virtual orchestra project. Technical report, CEDRIC-CNAM, 2003. 14 pages.
- [4] **Nicolas Bouillot**. Le transport du son produit en temps réel sur les réseaux best effort. Technical report, CEDRIC-CNAM, 2003. 37 pages.

Talks & Invited talks

- [1] **Nicolas Bouillot** and Michał Seta. The kaoncept collective: building a musical culture of not-in-real-life performance through conducted live improvisation. In *Network Arts: Transformation of Distance*, New York, USA, November 2021. NowNet Arts Conference.
- [2] **Nicolas Bouillot**, Emmanuel Durand, and Gwendal Creurer. Vers des expériences culturelles et pédagogiques socioimmersives en réalité mixte. In *MTL Connecte*, Montréal, October 2021. Printemps Numérique.
- [3] **Nicolas Bouillot**. Expériences sociales synthétiques : immersion de groupe et téléprésence. In *Faculté des sciences humaines, département de psychologie. Psychologie de la perception (PSY4050). Enseignante : Audrey Doualot.*, Montréal, April 2021.
- [4] **Nicolas Bouillot**, Amy Brandon, Matthew D. Gantt, Andrea Gozzi, Florian Grond, Wieslaw Wozczyk, and Rob Hamilton. Round table about spatialization, virtual reality, and augmented reality. In *Forum IRCAM Hors Les Murs*, Montreal, February 2021. IRCAM.
- [5] **Nicolas Bouillot**. La SAT au forum IRCAM: révolution de l'immersion sonore (entrevue). In *PanM360*, Montréal, February 2021.
- [6] Zack Settel and **Nicolas Bouillot**. Navigation à 6 degrés de liberté dans l'Orchestre Symphonique de Montréal. In *Symposium iX/Forum IRCAM Hors Les Murs*, Montréal, February 2021. SAT/IRCAM.
- [7] Michał Seta and **Nicolas Bouillot**. Rendu de scènes audio spatiales hétérogènes avec SATIE. In *Symposium iX/Forum IRCAM Hors Les Murs*, Montréal, February 2021. SAT/IRCAM.
- [8] Émile Ouellet-Delorme and **Nicolas Bouillot**. Auralisation en temps réel avec vaRays. In *Symposium iX/Forum IRCAM Hors Les Murs*, Montréal, February 2021. SAT/IRCAM.
- [9] Emmanuel Durand and **Nicolas Bouillot**. Présentation du Metalab, laboratoire de recherche de la SAT. In *Symposium iX/Forum IRCAM Hors Les Murs*, Montréal, February 2021. SAT/IRCAM.
- [10] **Nicolas Bouillot** and Emmanuel Durand. Les logiciels libres du Metalab de la [SAT]. In *Linux Meetup de Montréal*, January 2019.
- [11] Émile Ouellet-Delorme, Emmanuel Durand, Marie Ève Dumas, Michał Seta, Nicolas Bouillot, and Patrick Dupuis. Rapid prototyping of an immersive audiovisual installation. In *Immersion Expérience Symposium (iX), aires de jeux 360*, [SAT] Montréal, May 2019.
- [12] Monique Savoie, Emmanuel Durand, **Nicolas Bouillot**, Cédric Lalaizon, and Stéphane Vaillancourt. Le Metalab dévoile deux programmes de recherche à la rencontre de l'art et de l'industrie. In *Conférence de presse ICSA & SAV+R*, [SAT], Montréal, July 2019.

- [13] **Nicolas Bouillot**, Émile Ouellet-Delorme, and Michał Seta. Toward acoustic simulation of real-time immersive 6DoF navigation. In *Workshop on education in acoustics*, CIRMMT, Montréal, March 2019.
- [14] **Nicolas Bouillot**. Le Metalab : le laboratoire de recherche de la [SAT]. In *Maîtrise en création numérique à l'UQAT*, Rouyn-Noranda, December 2018.
- [15] **Nicolas Bouillot**. Le Metalab : le laboratoire de recherche de la [SAT]. In *Introduction à la téléprésence artistique pour les artistes (SAT/ENTC), formation donnée par Julien Brun*, Montréal, December 2018.
- [16] François Ubald Brien, Emmanuel Durrand, Jérémie Soria, Michał Seta, and **Nicolas Bouillot**. In-situ editing for domes. Immersion Experience (IX) symposium, Montreal, Canada, June 2017. (20 minutes).
- [17] **Nicolas Bouillot**, Zack Settel, and Michał Seta. SATIE: dense real-time audio scene rendering environment with definable protocols and arbitrary audio display configuration. Immersion Experience (IX) symposium, Montreal, Canada, February 2016. (60 minutes).
- [18] **Nicolas Bouillot**. Waterfall music. Network Music Festival, Birmingham, United Kingdom, February 2013. (20 minutes).
- [19] **Nicolas Bouillot**. Musical interaction among a group of distributed participants. Colloque Informatique cognitive et sa place dans l'industrie, Montreal, June 2011. (45 minutes).
- [20] **Nicolas Bouillot**. Perceptive consistency for group collaboration among distributed participants. School seminar at Queen's University, Kingston, Canada, April 2011. (60 minutes).
- [21] **Nicolas Bouillot**. An overview of digital musical stand, score following, spatialization and music information retrieval for distributed musical education. Open Orchestra Seminary, Montreal, January 2010. (30 minutes).
- [22] Jeremy R. Cooperstock, **Nicolas Bouillot**, Mike Wozniowski, and Zack Settel. Multimodal streaming and distributed audio interaction. High Quality Audio over Networks Summit, (ANET II), Banff, Canada, April 2008. (60 minutes).
- [23] **Nicolas Bouillot**, Hans-Nikolas Locher, and Eric Gressier-Soudan. The distributed virtual concert. First European seminar on Free Software for Multimedia Streaming on Internet (FSMSI'04), Paris, June 2004. (45 minutes).
- [24] **Nicolas Bouillot** and Hans-Nikolas Locher. Le concert virtuel réparti sur l'Internet: vers une approche composant. Groupe de recherche Systèmes temps réel Qualité de Service (StrQdS), Paris, April 2004. (45 minutes).

PERFORMANCES

Telematic Art

- [1] Michał Seta, **Nicolas Bouillot**, Emmanuel Durand, Nina Ripoll, Bennett Smith, Andrew Stewart, Dirk Stromberg, and Zack Settel. As of so little space. NowNet Arts Conference, New York, November 2021. (60 minutes).
- [2] Michał Seta, **Nicolas Bouillot**, Emmanuel Durand, Nina Ripoll, Bennett Smith, Andrew Stewart, Dirk Stromberg, and Zack Settel. A musical immersive improvisation for n remotely improvising musicians and any instrumentation in a virtual 3d world. Across the Town-averse. Boreal Electro Acoustic Music Society, June 2021. (30 minutes).
- [3] Michał Seta, **Nicolas Bouillot**, Emmanuel Durand, Nina Ripoll, Bennett Smith, Andrew Stewart, Dirk Stromberg, and Zack Settel. A Musical Immersive Improvisation with KaonCPT. Music at Noon, University of Lethbridge's Faculty of Fine Arts, March 2021. (30 minutes).
- [4] Michał Seta, **Nicolas Bouillot**, Emmanuel Durand, Nina Ripoll, Bennett Smith, Andrew Stewart, Dirk Stromberg, Hiroya Miura, Stuart McLeod, and Zack Settel. KaonCPT's Perriplayear (Canada, USA, Japan & Singapore). Symposium iX – Sound & Immersion.
- [5] Michał Seta, **Nicolas Bouillot**, Emmanuel Durand, Nina Ripoll, Bennett Smith, Andrew Stewart, Dirk Stromberg, Hiroya Miura, Stuart McLeod, Zack Settel, and Michael Edwards. KaonCPT's Perriplayear (Canada, USA, Japan & Singapore). Audio Art Festival 2020 - online, Academy of Music in Krakow, Poland, November 2020. (24 minutes).

- [6] Michal Seta, **Nicolas Bouillot**, Emmanuel Durand, Nina Ripoll, Bennett Smith, Andrew Stewart, Dirk Stromberg, Hiroya Miura, Stuart McLeod, and Zack Settel. KaonCPT's Perripplayear (Canada, USA, Japan & Singapore). Network Music Festival, Birmingham, United Kingdom, May 2020. (18 minutes).
- [7] **Nicolas Bouillot**, Emmanuel Durand, Michal Seta, Alexandre Quessy, and Zack Settel. Waterfall music (Montreal/Graz). Linux Audio Conference, IEM, Graz, Austria, May 2013. (17 minutes, composer & performer at Montreal).
- [8] **Nicolas Bouillot**, Emmanuel Durand, Michal Seta, and Alexandre Quessy. Waterfall music (Montreal/Birmingham). Network Music Festival, Birmingham, United Kingdom, February 2013. (17 minutes, composer & performer at Birmingham).

DISTINCTIONS & RESEARCH GRANTS

2019-2021	“Simulation of Volumetric Acoustics in VR/AR/MR (SAV+R)” Quebec Ministry of Economy and Innovation (MEI). With Emmanuel Durand.
2019-2021	“Spontaneous, Adaptative and Collaborative Immersion (ICSA)” Quebec Ministry of Economy and Innovation (MEI). With Emmanuel Durand.
2017-2019	“Creation of tools and processes for the creation and in situ editing of interactive immersive spaces” Quebec Ministry of Economy, Science and Innovation (MESI). With Emmanuel Durand.
2009	selected among best papers at the 9 th Conférence Internationale sur les NOuvelles TEchnologies de la RÉpartition (NOTERE’09)
2003	best paper at the MANifestation des JEunes Chercheurs en Sciences et Technologies de l’Information et de la Communication (MAJEC-STIC’03)
2002–2005	merit scholarship from French Ministry of Research and Technology (Ph.D.)
2001	merit scholarship (Master2)

SCIENTIFIC PARTICIPATION

REVIEW	<p>committee member of the conference on New Interface for Musical Expression, NIME (52 papers since 2009)</p> <p>International Society for Music Information Retrieval Conference, ISMIR (6 papers since 2020)</p> <p>NSERC College and Community Innovation Grant review (1 proposal since 2020)</p> <p>meta reviewer of the conference on New Interface for Musical Expression, NIME (2015)</p> <p>Journal of the Audio Engineering Society (8 papers since 2012)</p> <p>IEEE Transaction on Multimedia (10 papers between 2005 & 2013)</p> <p>126th Convention of the Audio Engineering Society, 2009 (7 papers)</p> <p>French workshop on consistency issues in distributed systems, CDUR’09 (3 papers)</p> <p>5th Workshop on Network & System Support for Games, NETGAMES’06 (2 papers)</p>
ORG.	<p>president of the CDUR’09 workshop program committee (Consistency issues in distributed systems)</p> <p>Ph.D. Students representative substitute for CNAM-CEDRIC (elected from 2003 to 2007)</p> <p>organization committee member for UBIMOB’06 (French conference on Ubiquity and Mobility)</p> <p>organization committee member for JTRES’06 (4th International Workshop on Java Technologies for Real-time and Embedded Systems)</p>

Intern supervision

- [1] Audrey Doualot. Immersive virtual reality & the transmission of sensibility in architecture, January 2022. Post-doctorat — Université du Québec à Montréal.
- [2] Hector Teyssier. Live impulse response interpolation, August 2021. Bachelor (B-Sc) — Université McGill.
- [3] Jean Philippe Robitaille-Larratt. Strategy for an open, diverse and inclusive software community, September 2021. Informatique et génie logiciel — Université du Québec à Montréal.
- [4] Élisabeth Fagnan. User experience design and integration for a web application dedicated to sound spatialization, August 2021. Baccalauréat en génie logiciel — Polytechnique Montréal.
- [5] Io Andes Daza-Dillon. Modification of Mozilla Hubs audio rendering system, April 2021. Baccalauréat en génie logiciel, ÉTS.
- [6] Mouna Belaid. Architecture design and prototyping of cloud based immersive audiovisual rendering, August 2020. Baccalauréat en génie logiciel, Polytechnique Montréal.
- [7] Pierre Gruner. , August 2020. Maîtrise Génie des Systèmes (Gestion des affaires), École de Technologie Supérieure (ÉTS).
- [8] Benjamin Langlois. Evaluation and prototyping of virtual loudspeaker using a cluster of spherical loudspeakers, April 2020. Génie Électrique T3, Université de Sherbrooke.
- [9] Hantz-Carly Fleurant Vius. Evaluation and prototyping web videoconferencing interoperability with the Scenic software, April 2020. Génie Informatique T2, Université de Sherbrooke.
- [10] Maÿlis Merveilleux du Vignaux. User Study of Immersive Historical Learning, September 2020. Master en Science (bourse MITACS), HEC Montréal.
- [11] Youness Salame. User Study of Immersive Historical Learning, September 2020. Master en Science (bourse MITACS), HEC Montréal. Co-encadrée avec P.-M. Léger.
- [12] Léa Nugue. In-situ Prototyping of Immersive experience, September 2019. Diplôme Supérieur de Recherche en Art (DSRA), École Supérieure d'Art Ancey Alpes (ESA AA).
- [13] Joseph Battesti. Measure and Visualization of Directional Impulse Response, August 2019. Génie Physique, Polytechnique Montréal.
- [14] Vincent Cusson. Conversion of spatial audio to a standard format, April 2019. Baccalauréat en communication profil médias interactifs, Université du Québec à Montréal (UQAM).
- [15] Julien Wantz. Real-time synthesis of impulse response for acoustic simulation, November 2018. Diplôme d'ingénieur, École Centrale de Nantes.
- [16] Jérôme Berthelin. Video projection on mobile object, April 2018. Diplôme d'ingénieur, École nationale supérieure d'informatique pour l'industrie et l'entreprise (ENSIIE) Paris-Évry.
- [17] Miriana Couvret-Michel. Prototyping Immersive Scenography, May 2018. Master Création Numérique : Interactivité, Générativité, Université Toulouse II Jean Jaurès.
- [18] Olivier Penin. Musical gesture recognition using noise extraction, September 2011. Master1 Univ. Paris-Sud.
- [19] Marcio Tomiyoshi. Services for multimedia streaming, July 2011. Master2 Univ. São Paulo.
- [20] Nordhal Mabire. Score/audio alignment with MATCH, VAMP and MusicXML, October 2010. Master2 Supelec.
- [21] Mathieu Brûlé. Musical performance comparison and qualitative analysis of audio signals, October 2009. Master2 Univ. of Strasbourg.
- [22] Vincent Roudaut. Deploying the distributed concert, November 2005. Master2 CNAM, Paris.
- [23] Samundeswary Ramachandra. Using multimedia caching and P2P for the distributed concert, October 2005. Master2 Paris 6 Univ.
- [24] Pierre-Antoine Baudrit. Visual communication supporting distributed musical interaction, September 2004. IIE-CNAM Engineer.

- [25] Julien Cordry. Integrating the real-time engine jMax into BOSSA, a modular Linux kernel, September 2004. Master2 CNAM, Paris.
- [26] Jean-Marie Sama. Avatar for Kathak Dancing, June 2003. Master2 CNAM, Paris.
- [27] Rémy Bonafous. IP multicast for the distributed concert, April 2003. CNAM Engineer.
- [28] Hans Nikolas Locher. Prototyping a distributed mixing table based on industrial control standard TASE 2, January 2003. Licence3 CNAM, Paris.
- [29] Samundeswary Ramachandra. Design and developpement of an RTP extension for the NTOP monitoring tool, June 2003. Licence3 CNAM, Paris.

TEACHING

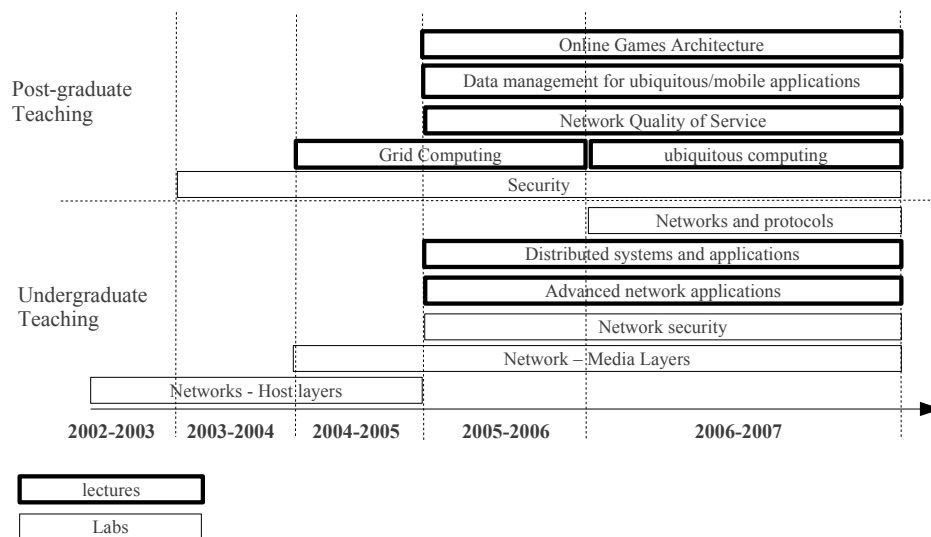
Universities and School

The **Conservatoire National des Arts et Métiers (CNAM)** is a Public Scientific, Cultural and Professional Institution, classed as a grand établissement, among France's top higher education establishments. Supervised by the Minister for Higher Education, the Cnam has a triple role: providing life-long training, undertaking research in technology and innovation and disseminating a culture of science and technology.

Pierre & Marie Curie University (UPMC) is the largest universities teaching science and medicine in France, and indeed in Europe, with 4 000 researchers and teaching academics/researchers, 180 laboratories, and some 30 000 students including 8 000 in postgraduate studies.

The **École Nationale du Jeu et des Medias Interactifs Numériques ENJMIN** is a public institute based on a partnership with the CNAM, the Universities of La Rochelle and Poitiers, the regional Poitou-Charentes CNAM, the national comics and image Centre (CNBDI), and businesses in the audio-visual and telecommunication technology and games sectors. The universities and the CNAM ensure the accreditation for the Master programmes.

Teaching time line



Supervised the Middleware/Ubiquitous Computing courses during the 2006-2007 year for the SAR Master2 (Distributed Systems and Applications) at the UPMC, including planning, introduction course, administrative task and exam. Wrote exams for the *Networks and Quality Of Service* and the *Grid Computing* courses.