



Resume

Jean-Marie NORMAND

Born April 2nd 1981 in Nantes (France) – French, Married, 1 child

jean-marie.normand@ec-nantes.fr

Researcher unique identifier: ORCID # [0000-0003-0557-4356](https://orcid.org/0000-0003-0557-4356)

Google Scholar H-index: 19 – Citations: 1923 (as of November 2022)

Personal Address

3 place Victor Mangin
5^e étage
44200 Nantes

Professional Address

École Centrale de Nantes – Bureau E211
1 Rue de la Noë – BP 92101
44321 Nantes Cedex 03
Phone: +33 2 40 37 16 02

Professional Experience (since MPhil)

- From Sept. 2017 **Associate Professor with Habilitation (Dec. 2021)** at École Centrale de Nantes (ECN), France. Member of the Computer Science and Mathematics Department and the CRENAU/AAU UMR CNRS 1563 laboratory. Associate Member of the Inria Hybrid team (Rennes, France). Research topics: Virtual Reality (VR) and Augmented Reality (AR).
- Sept. 2012-Aug. 2017 **Project Assistant Professor** at École Centrale de Nantes, France, Computer Science and Mathematics Dept. and AAU UMR CNRS 1563 laboratory.
- March-August 2012 **Post-doctoral researcher** at École Centrale de Nantes and in the CERMA laboratory under the direction of Pr. Guillaume MOREAU, working in the MERVI project (regional funding), Nantes, France.
- March 2011-Feb. 2012 **Post-doctoral researcher** at École Centrale de Nantes and in the CERMA laboratory under the direction of Pr. Guillaume MOREAU, working in the IMMERSION project (regional funding with 2 small and medium companies), Nantes, France.
- March 2009-Feb. 2011 **Post-doctoral researcher** at the EventLab, under the direction of Pr. Mel SLATER, Facultat de Psicologia, Universitat Barcelona, Barcelona, Spain.
- 2008-Feb.2009 **Temporary Research and Teaching Assistant (ATER)** full-time position (192h of teaching). Computer Science Department of the University of Nantes, France and LINA laboratory, Constraints (now TASC) team.
- 2007-2008 **Temporary Research and Teaching Assistant (ATER)** half-time position (96h of teaching). Computer Science Department of the University of Nantes, France and LINA laboratory, Constraints (now TASC) team.
- 2004-2007 **PhD Student** (Scholarship from the French Ministry of Research and higher Education) in the Constraints (now TASC) team of the LINA laboratory. Teaching in the Computer Science Department of the University of Nantes, France. Subject: **Virtual Camera Control**

Education

Dec. 2021	Habilitation in Computer Science (French HDR), University of Nantes, France
<i>Title</i>	Contribution to the study of perception in Mixed Environments
<i>Defense</i>	December 17 th 2021 at Ecole Centrale de Nantes, France
<i>Jury</i>	
<i>Reviewers</i>	Pr. Dominique BECHMANN, iCUBE, Université de Strasbourg, Strasbourg France Pr. Géry CASIEZ, CRISTaL, Université de Lille, Lille, France Pr. Thierry DUVAL, Lab-STICC, IMT Atlantique, Brest, France
<i>Members</i>	Dr. HDR Damien CHABLAT, LS2N, CNRS, Nantes, France Pr. Pascal GUITTON, LaBRI, Université de Bordeaux, Bordeaux, France Pr. Nassir NAVAB, Computer Aided Medical Procedures & Augmented Reality, Technische Universität München, Germany
<i>HDR Mentor</i>	Pr. Guillaume MOREAU, Lab-STICC, IMT Atlantique, Brest, France
2004-2008	PhD in Computer Science, University of Nantes, France
<i>Title</i>	<u><i>Virtual Camera Control</i></u>
<i>Defense</i>	January 29 th 2008 at the LINA laboratory, University of Nantes, France.
<i>Supervisors</i>	Pr. Frédéric BENHAMOU – LINA, University of Nantes, France (director). Dr. Marc CHRISTIE – LINA, University of Nantes and IRISA, Rennes (co-supervisor).
<i>Abstract</i>	Virtual camera composition consists in positioning and orienting a camera within a 3D environment to fulfill a set of user-defined cinematographic or visual properties. This task is difficult to achieve in practice. Indeed, while the user knows exactly how the objects should be laid out in the resulting image, the camera's 3D software manipulation process is awkward. The user has to perform a mental inversion i.e., while knowing the result, he has to infer the camera's position and orientation in the 3D environment which will lead to the correct layout on the screen. As a result, the user would greatly profit from the development of virtual composition assisting techniques. In this thesis, we have identified three research interests related to virtual camera composition that deserve specific attention. Firstly, existing camera control techniques lack flexibility both in the resolution and the description processes. Over-constrained problems (i.e., without any solutions) are but not supported and describing a camera composition problem by a set of visual properties can be difficult. We propose a flexible resolution technique that computes the solutions by maximizing the number of their properties, regardless of whether the problem is over-constrained or not. Secondly, existing methods only compute a unique solution for a virtual camera composition problem, even when the problem possesses a set of equivalent solutions with respect to the properties. We introduced the semantic volumes method, which computes every class of semantically equivalent solution and presents the user with an appropriate representative for each class. Finally, occlusion consists of a fundamental problem regarding the conveyance of information contained in images. Consequently, we have proposed a new method for occlusion avoidance in dynamic real-time virtual environments.

Jury

President

Dr. Stéphane DONIKIAN – HDR (French Habilitation) – Inria Senior Researcher, IRISA, Rennes, France.

Referees

Pr. Michel RUEHER – Full Professor, École Polytechnique de l’Université de Nice Sophia-Antipolis, University of Nice Sophia-Antipolis, France.

Dr. Pere-Pau VÁZQUEZ – Associate Professor, Universitat Politècnica de Catalunya, Barcelona, España.

Members

Dr. Patrick OLIVIER – Senior Lecturer, University of Newcastle upon Tyne, United Kingdom.

Pr. Frédéric BENHAMOU – Full Professor, University of Nantes, France PhD director.

Dr. Marc CHRISTIE – Associate Professor, University of Nantes and IRISA, France, PhD co-supervisor.

2003-2004

Title

MPhil in Computer Science at the University of Nantes, France

Contributions to virtual camera control

Supervisors

Dr. Marc CHRISTIE – LINA, University of Nantes, France.

Pr. Frédéric BENHAMOU – LINA, University of Nantes, France.

Laboratory

LINA, Constraints (now TASC) team, University of Nantes, France

2002-2003

Post-graduate diploma in Computer Science, specialty in Computer Graphics (With Honors) University Claude Bernard, Lyon I, France.

April – Oct. 2003

Internship – Eden Games, video-game development company (multiplatform consoles) – Lyon, France.

Supervisors

Pr. Samir AKKOUCHE (LIRIS, University Claude Bernard, Lyon I)

Stéphane BELEY, Didier BLANCHÉ (Eden Games)

2001-2002

MSc in Computer Science, University of Nantes, France

1998-2001

BSc in Computer Science, University of Nantes, France

1997-1998

Baccalauréat (French high school diploma), Science major – Lycée Notre Dame, Rezé (44), France

Publications

This section contains a full list of all my scientific publications. Whenever the selection rate of a conference is known, it is indicated at the end of the publication within parentheses, e.g., (32%).

Publications summary

The following table summarizes my scientific publications, for further information refer to the Publication section of this resume.

Book chapters	International journals	International Conferences
4	16	26

Book Chapters:

[Gaugne et al. 2022] R. GAUGNE, J.-B. BARREAU, F. LÉCUYER, T. NICOLAS, **J.-M. NORMAND**, V. GOURANTON. “eXtended Reality for Cultural Heritage”. In: D'Amico S., Venuti V. (eds) *Handbook of Cultural Heritage Analysis*. Part: Monitoring of Cultural Heritage, 3D Survey, Models, and GIS, pp. 1405-1437. Springer, Cham. [doi:10.1007/978-3-030-60016-7_48](https://doi.org/10.1007/978-3-030-60016-7_48)

[Baillard et al. 2018] C. BAILLARD, P. GUILLOTTEL, A. LÉCUYER, F. LOTTE, N. MOLLET, **J.-M. NORMAND** and G. SEYDOUX, “Scientific and Technical Prospects”. In B. Arnaldi, P. Guitton, G. Moreau, (Eds.), *Virtual Reality, Augmented Reality: myths and realities*, Chap. 5, pp. 247-289, Wiley; 2018.

[Moreau, Servières, Normand, Magnin 2014] G. MOREAU, M. SERVIÈRES, **J.-M. NORMAND**, M. MAGNIN, “Challenges of Image-Based Crowd-Sourcing for Situation Awareness in Disaster Management”. In *Improving Disaster Resilience and Mitigation - IT Means and Tools*, Chap. 7, pp. 103-118, Springer, 2014.

[Normand 2007] **J.-M. NORMAND**, “Computer graphics and Constraint solving: An application to Virtual Camera Control”. In *Trends in Constraint Programming*, Chap. 27, pp. 395-404, ISTE, 2007.

International Journals:

[Pillette et al. 2022] L. PILLETTE, G. MOREAU, **J.-M. NORMAND**, M. PERRIER, A. LÉCUYER and M. COGNÉ. A Systematic Review of Navigation Assistance Systems for People with Dementia. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2022. [doi:10.1109/TVCG.2022.3141383](https://doi.org/10.1109/TVCG.2022.3141383).

[Outahar, Moreau, Normand 2021] M. OUTAHAR, G. MOREAU, **J.-M. NORMAND**. Direct and Indirect vSLAM Fusion for Augmented Reality. *Journal of Imaging*, 2021, 7(8):141. [doi:10.3390/jimaging7080141](https://doi.org/10.3390/jimaging7080141)

[Lombart et al. 2020] C. LOMBART, E. MILLAN, **J.-M. NORMAND**, A. VERHULST, B. LABBÉ-PINLON, G. MOREAU. Effects of Physical, Non-Immersive Virtual, and Immersive Virtual Store Environments on Consumers' Perceptions and Purchase Behavior. *Computers in Human Behavior*, 2020, 110, 106374. [doi:10.1016/j.chb.2020.106374](https://doi.org/10.1016/j.chb.2020.106374)

[Gao et al 2020] Y. GAO, E. PEILLARD, **J.-M. NORMAND**, G. MOREAU, Y. LIU, Y. WANG. Influence of virtual objects' shadows and lighting coherence on distance perception in optical see-through augmented reality. *Journal of the Society for Information Display*, 2020, 28(2):117–135. [doi:10.1002/jsid.832](https://doi.org/10.1002/jsid.832)

[Lombart et al. 2019] C. LOMBART, E. MILLAN, **J.-M. NORMAND**, A. VERHULST, B. LABBÉ-PINLON, G. MOREAU. Consumer perceptions and purchase behavior toward imperfect fruits and vegetables in an immersive virtual reality grocery store. *Journal of Retailing and Consumer Services*, Elsevier, 2019, 48, pp.28-40. [doi:10.1016/j.jretconser.2019.01.010](https://doi.org/10.1016/j.jretconser.2019.01.010), [hal-01995916](https://hal.archives-ouvertes.fr/hal-01995916)

[Gao et al. 2019] Y. GAO, Y. LIU, **J.-M. NORMAND**, G. MOREAU, X. GAO, Y. WANG. A study on differences in human perception between a real and an AR scene viewed in an OST-HMD. *Journal of the Society for Information Display*, Society for Information Display, 2019, 27(3). pp.1-17. [doi:10.1002/jsid.752](https://doi.org/10.1002/jsid.752), [hal-01987255](https://hal.archives-ouvertes.fr/hal-01987255)

[Verhulst et al. 2018] A. VERHULST, **J.-M. NORMAND**, C. LOMBART, M. SUGIMOTO and G. MOREAU. Influence of Being Embodied in an Obese Virtual Body on Shopping Behavior and Products Perception in VR. *Frontiers in Robotics and AI*, 2018, 5:113. [doi:10.3389/frobt.2018.00113](https://doi.org/10.3389/frobt.2018.00113)

[Yang, Normand, Moreau 2015] L. YANG, **J.-M. NORMAND**, G. MOREAU. Local Geometric Consensus: a general purpose point pattern-based tracking algorithm. *IEEE Transactions on Visualization and Computer Graphics*, vol. 21, no. 11, pp. 1299-1308, Nov. 15 2015. [doi:10.1109/TVCG.2015.2459897](https://doi.org/10.1109/TVCG.2015.2459897)

[Spanlang et al. 2014] B. SPANLANG, **J.-M. NORMAND**, D. Borland, K. KILTENI, E. GIANNOPOULOS, A. POMES, M. GONZALEZ-FRANCO, D. Perez-Marcos, J. ARROYO PALACIOS X. NAVARRO MUNCUNILL, M. SLATER, How to Build an Embodiment Lab: Achieving Body Representation Illusions in Virtual Reality. *Frontiers in Robotics and AI* 1(9). [doi:10.3389/frobt.2014.00009](https://doi.org/10.3389/frobt.2014.00009)

[Normand et al. 2012] **J.-M. NORMAND**, M.-V. SANCHEZ-VIVES, C. WAECHTER, E. GIANNOPOULOS, B. GROSSWINDHAGER, B. SPANLANG, C. GUGER, G. KLINKER, M. A. SRINIVASAN, M. SLATER. Beaming into the Rat World: Enabling Real-Time Interaction between Rat and Human Each at Their Own Scale. *PLoS ONE* 7(10): e48331. [doi:10.1371/journal.pone.0048331](https://doi.org/10.1371/journal.pone.0048331)

[Kilteni et al. 2012] K. KILTENI, **J.-M. NORMAND**, M.-V. SANCHEZ-VIVES, M. SLATER. Extending Body Space in Immersive Virtual Reality: A Very Long Arm Illusion. *PLoS ONE* 7(7): e40867. [doi:10.1371/journal.pone.0040867](https://doi.org/10.1371/journal.pone.0040867)

[Stephoe et al. 2012] W. STEPTOE, **J.-M. NORMAND**, O. OYEKOYA, F. PECE, E. GIANNOPOULOS, F. TECCHIA, A. STEED, M. SLATER. Acting in Collaborative Multimodal Mixed Reality Environments. *Presence: Teleoperators and Virtual Environments*, Vol. 21-4, pp. 406-422, 2012. [doi:10.1162/PRES_a_00109](https://doi.org/10.1162/PRES_a_00109)

[Normand et al. 2012] **J.-M. NORMAND**, B. SPANLANG, F. TECCHIA, M. CARROZZINO, D. SWAPP, M. SLATER. Full Body Acting Rehearsal in a Networked Virtual Environment – A Case Study. *Presence: Teleoperators and Virtual Environments*, Vol 21-2, pp. 229-243, 2012. [doi:10.1162/PRES_a_00089](https://doi.org/10.1162/PRES_a_00089)

[Normand et al. 2011] **J.-M. NORMAND**, E. GIANNOPOULOS, B. SPANLANG, M. SLATER. Multisensory Stimulation Can Induce an Illusion of Larger Belly Size in Immersive Virtual Reality. *PLoS ONE* 6(1): e16128. [doi:10.1371/journal.pone.0016128](https://doi.org/10.1371/journal.pone.0016128)

[Normand et al. 2010] **J.-M. NORMAND**, A. GOLDSZTEJN, M. CHRISTIE, F. BENHAMOU, A Branch and Bound Algorithm for Numerical MAXCSP. *Constraints*, Vol 15–2, pp. 213-237, 2010. [doi:10.1007/s10601-009-9084-1](https://doi.org/10.1007/s10601-009-9084-1)

[Christie, Olivier, Normand 2008] M. CHRISTIE, P. OLIVIER, **J.-M. NORMAND**, Camera Control in Computer Graphics. *Computer Graphics Forum*, Vol. 27-8, pp. 2197-2218, 2008. [doi:10.1111/j.1467-8659.2008.01181.x](https://doi.org/10.1111/j.1467-8659.2008.01181.x)

International Conferences with selection committee:

[Cheymol et al. 2022] A. CHEYMOL, R. FRIBOURG, N. OGAWA, A. LÉCUYER, Y. HIRAO, T. NARUMI, F. ARGELAGUET, **J.-M. NORMAND**. “Studying the Role of Self and External Touch in the Appropriation of Dysmorphic Hands”. In IEEE International Symposium on Mixed and Augmented Reality (ISMAR 2022), Orlando, Singapore, 2022.

[Guy et al. 2022] M. GUY, C. JEUNET-KELWAY, G. MOREAU, **J.-M. NORMAND**. “Manipulating the Sense of Embodiment in Virtual Reality: a study of the interactions between the senses of agency, self-location and ownership”. In ICAT-EGVE 2022 - International Conference on Artificial Reality and Telexistence and Eurographics Symposium on Virtual Environments, Yokohama, Japan, 2022.

[Cauquis et al. 2022] J. CAUQUIS, V. R. MERCADO, G. CASIEZ, **J.-M. NORMAND**, A. LÉCUYER. “"Kapow!": Studying the Design of Visual Feedback for Representing Contacts in Extended Reality”. In VRST 2022-28th ACM Symposium on Virtual Reality Software and Technology, Tsukuba, Japan, 2022. [doi:10.2312/egve.20201263](https://doi.org/10.2312/egve.20201263)

[Thiaville et al. 2020] E. THIAVILLE, **J.-M. NORMAND**, J. KENNY, A. VENTRESQUE. “Virtual Avatars as Children Companions for a VR-based Educational Platform: How Should They Look Like?”. In ICAT-EGVE 2020 - International Conference on Artificial Reality and Telexistence and Eurographics Symposium on Virtual Environments, Orlando, USA, 2020. [doi:10.2312/egve.20201263](https://doi.org/10.2312/egve.20201263)

[Peillard et al. 2020] E. PEILLARD, Y. ITOH, **J.-M. NORMAND**, F. ARGELAGUET, G. MOREAU, A. LÉCUYER. “Can Retinal Projection Displays Improve Spatial Perception in Augmented Reality”. In 2020 IEEE International Symposium on Mixed and Augmented Reality (ISMAR), Recife, Brazil, 2020, pp. 124-133. [doi:10.1109/ISMAR50242.2020.00028](https://doi.org/10.1109/ISMAR50242.2020.00028)

[Peillard et al. 2019b] E. PEILLARD, F. ARGELAGUET, **J.-M. NORMAND**, A. LÉCUYER, G. MOREAU. “Studying Exocentric Distance Perception in Optical See-Through Augmented Reality”. In 2019 IEEE International Symposium on Mixed and Augmented Reality (ISMAR), Beijing, China, 2019, pp. 115-122. [doi.10.1109/ISMAR.2019.00-13](https://doi.org/10.1109/ISMAR.2019.00-13) (22%)

[Peillard et al. 2019a] E. PEILLARD, T. THEBAUD, **J.-M. NORMAND**, F. ARGELAGUET, G. MOREAU, A. LÉCUYER. “Virtual Objects Look Farther on the Sides: The Anisotropy of Distance Perception in Virtual Reality”. In 2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR), Osaka, Japan, 2019, pp. 227-236. [doi:10.1109/VR.2019.8797826](https://doi.org/10.1109/VR.2019.8797826) (21.5%) ***Best Conference Paper Award***

- [Terrier et al. 2018] R. TERRIER, F. ARGELAGUET, **J.-M. NORMAND**, M. MARCHAL. “Evaluation of AR Inconsistencies on AR Placement Tasks: A VR Simulation Study”. In Proc. of the *EuroVR 2018 International Conference on Virtual Reality and Augmented Reality*, Oct 2018, pp.190-210, 2018, LNCS. [doi:10.1007/978-3-030-01790-3_12](https://doi.org/10.1007/978-3-030-01790-3_12), [hal-01947356](https://hal.archives-ouvertes.fr/hal-01947356) (38%)
- [Barbier et al. 2017] J. BARBIER, P. KENNY, J. YOUNG, **J.-M. NORMAND**, M. KEANE, M. O’SULLIVAN, A. VENTRESQUE. “MAAP Annotate: When Archaeology meets Augmented Reality for Annotation of Megalithic Art”. In Proc. of the *23rd International Conference on Virtual Systems and Multimedia*, VSMM 2017, Oct 2017. pp.1-8, [hal-01626057](https://hal.archives-ouvertes.fr/hal-01626057)
- [Verhulst et al. 2017b] A. VERHULST, **J.-M. NORMAND**, G. MOREAU. “Generation of variability in shape, aspect and time of 3D Fruits and Vegetables”. In Proc. of the *23rd International Conference on Virtual Systems and Multimedia*, VSMM 2017, Oct 2017. pp.1-8, [hal-01625956](https://hal.archives-ouvertes.fr/hal-01625956)
- [Transon et al. 2017] A. TRANSON, A. VERHULST, **J.-M. NORMAND**, G. MOREAU, M. SUGIMOTO. “Evaluation of Facial Expressions as an Interaction Mechanism and their Impact on Affect, Workload and Usability in an AR game”. In Proc. of the *23rd International Conference on Virtual Systems and Multimedia*, VSMM 2017, Oct 2017, Dublin, Ireland. pp.1-8, [hal-01625955](https://hal.archives-ouvertes.fr/hal-01625955)
- [Verhulst et al. 2017] A. VERHUSLT, **J.-M. NORMAND**, C. LOMBART, G. MOREAU. “A Study on the Use of an Immersive Virtual Reality Store to investigate Consumer Perceptions and Purchase Behavior toward Non-standard Fruits and Vegetables”. In Proc. of the *IEEE Virtual Reality 2017 Conference (VR 2017)*, Los Angeles, USA, March 18-22, 2017. [doi:10.1109/VR.2017.7892231](https://doi.org/10.1109/VR.2017.7892231) (23%)
- [Yang et al. 2016] L. YANG, H. UCHIYAMA, **J.-M. NORMAND**, G. MOREAU, H. NAGAHARA AND R. TANIGUCHI. “Real-time surface of revolution reconstruction on dense SLAM”. In Proc. of the *4th International Conference on 3D Vision (3DV) 2016*, Stanford, USA, October 25-28, 2016. [doi:10.1109/3DV.2016.13](https://doi.org/10.1109/3DV.2016.13) (9.7%)
- [Yang, Normand, Moreau 2016] L. YANG, **J.-M. NORMAND**, G. MOREAU. “Practical and precise projector-camera calibration”. In Proc. of the *15th IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, Merida, Mexico, September 19-23, 2016. [doi:10.1109/ISMAR.2016.22](https://doi.org/10.1109/ISMAR.2016.22) (22.5%)
- [Yang, Normand, Moreau 2015] L. YANG, **J.-M. NORMAND** AND G. MOREAU. “Augmenting off-the-shelf paper maps using intersection detection and geographical information systems”. In Proc. of the *14th IAPR International Conference on Machine Vision Applications (MVA 2015)*, Tokyo, 2015, pp. 190-193. [doi:10.1109/MVA.2015.7153164](https://doi.org/10.1109/MVA.2015.7153164) (13%)
- [Verhulst, Normand, Moreau 2015] A. VERHULST, **J.-M. NORMAND**, G. MOREAU. “Visually-Realistic Appearance Changes of Fruits and Vegetables using Particle Systems”. In Proc. of *Computer Graphics International (CGI 2015)*, Strasbourg, France, June 24-26, 2015. [hal-01625956](https://hal.archives-ouvertes.fr/hal-01625956)
- [Yang, Normand, Moreau 2014] L. YANG, **J.-M. NORMAND**, G. MOREAU. “Robust random dot markers: towards augmented unprepared maps with pure geographic features”. In *Proceedings of the 20th ACM Symposium on Virtual Reality Software and Technology (VRST’14)*, Edinburgh, United Kingdom, November 11-13, 2014, pp. 45-54. [doi:10.1145/2671015.2671022](https://doi.org/10.1145/2671015.2671022) (24%)

[Spanlang et al. 2013] B. SPANLANG, X. NAVARRO, **J.-M. NORMAND**, S. KISHORE, R. PIZARRO, M. SLATER. “Real Time Whole Body Motion Mapping for Avatars and Robots”. In *Proceedings of the 19th ACM Symposium on Virtual Reality Software and Technology (VRST’ 13)*, Singapore, October 6-9, 2013, pp. 175-178. [doi:10.1145/2503713.2503747](https://doi.org/10.1145/2503713.2503747)

[Christie, Normand, Olivier 2012] M. CHRISTIE, **J.-M. NORMAND**, P. OLIVIER. “Occlusion-free Camera Control for multiple targets”. In *Proceedings of the ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA ‘12)*, Switzerland, 59-64. [hal-00766255](https://hal.archives-ouvertes.fr/hal-00766255)

[Normand, Servières, Moreau 2012] **J.-M. NORMAND**, M. SERVIERES, G. MOREAU. “A new typology of augmented reality applications”, In *Proceedings of the 3rd Augmented Human International Conference (AH '12)*. ACM, New York, NY, USA, Article 18, 8 pages. [doi:10.1145/2160125.2160143](https://doi.org/10.1145/2160125.2160143)

[Spanlang, Normand, Giannopoulos, Slater 2010] B. SPANLANG, **J.-M. NORMAND**, E. GIANNOPOULOS, M. SLATER. “A First Person Avatar System with Haptic Feedback”. In *Proceedings of the 17th ACM Symposium on Virtual Reality Software and Technology (VRST’ 10)*, ACM, New York, NY, USA, 47-50. [doi:10.1145/1889863.1889870](https://doi.org/10.1145/1889863.1889870)

[Spanlang et al. 2010] B. SPANLANG, **J.-M. NORMAND**, E. GIANNOPOULOS, M. SLATER. “GPU based Detection and Mapping of Collisions for Haptic Rendering in Immersive Virtual Reality”. In *Proceedings of the 2010 IEEE International Symposium on Haptic Audio-Visual Environments and Games, HAVE 2010*. [doi:10.1109/HAVE.2010.5623976](https://doi.org/10.1109/HAVE.2010.5623976)

[Normand et al. 2008] **J.-M. NORMAND**, A. GOLDSZTEJN, M. CHRISTIE, F. BENHAMOU. “A Branch and Bound Algorithm for Numerical MAX-CSP”. In *Proceedings of Principles and Practice of Constraint Programming, 14th International Conference, CP 2008*, Sydney, Australia, September 14-18, 2008, pp.215-219. (32%) [doi:10.1007/978-3-540-85958-1_14](https://doi.org/10.1007/978-3-540-85958-1_14) ***Best Student Paper Award***

[Truchet, Christie, Normand 2008] C. TRUCHET, M. CHRISTIE, **J.-M. NORMAND**. “A tabu search method for interval constraints”. In *Proceedings of Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems, 5th International Conference, CPAIOR 2008*, Paris, France, May 20-23, pp. 372-376. [doi:10.1007/978-3-540-68155-7_40](https://doi.org/10.1007/978-3-540-68155-7_40)

[Christie & Normand 2005] M. CHRISTIE et **J.-M. NORMAND**. “A Semantic Space Partitioning Approach to Virtual Camera Control”. In *Proceedings of the 26th Annual Eurographics Conference, Eurographics’2005, Computer Graphics Forum*, Vol. 24-3, pp. 247-256, 2005. [doi:10.1111/j.1467-8659.2005.00849.x](https://doi.org/10.1111/j.1467-8659.2005.00849.x) (16%)

[Christie et al. 2005] M. CHRISTIE, R. K. MACHAP, **J.-M. NORMAND**, P. OLIVIER, J. PICKERING. “Virtual Camera Planning: A survey”. In *Proceedings of the 5th International Symposium on SmartGraphics SG’2005*, pp. 40-52, LNCS 3638, 2005.

Posters in international conferences with selection committee:

[Mercado, Normand, Lécuyer 2020] V. Mercado, **J.-M. NORMAND**, A. LÉCUYER, “Kapow!: Augmenting Contacts with Real and Virtual objects Using Stylized Visual Effects”. In *Proceedings of the 2020 IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, November 9-13, 2020, Recife, Brazil.

[Normand et al. 2013] **J.-M. NORMAND**, A. MILLIAT, M. CHRISTIE, F. PICAROUGNE, G. MOREAU, A. BOUCHET, J.-L. DAUTIN, “Analysis of virtualization as a solution to VR-system sharing”. In *Proceedings of the 23rd International Conference on Artificial Reality and Telexistence, ICAT 2013*, December 11-13, 2013, Tokyo, Japan.

International Workshops with selection committee:

[Normand, Servières, Moreau 2012] **J.-M. NORMAND**, M. SERVIERES, G. MOREAU. “A typology of augmented reality applications based on their tracking requirements”. In *LAMDa 2012, Location Awareness for Mixed and Dual Reality, IUI 2012 Workshop*, Lisbon, Portugal, 2012.

[Steptoe et al. 2011] W. STEPTOE, **J.-M. NORMAND**, O. OYEKOYA, F. PECE, E. GIANNOPOULOS, F. TECCHIA, A. STEED, M. SLATER. “Acting in Collaborative Multimodal Mixed Reality”. In *RAVE/BEAMING 2011 Workshop*, Barcelona, Spain, 2011.

[Christie, Normand, Truchet 2006] M. CHRISTIE, **J.-M. NORMAND**, C. TRUCHET, “Computing inner approximations of numerical Max-CSPs.” In *Interval Analysis, Constraint Propagation, Applications IntCP'2006*, Nantes, France, 2006.

[Normand 2006] **J.-M. NORMAND**, “Computer graphics and constraint solving: An application to virtual camera control”. In *First International Workshop on Constraint Programming for Graphical Applications CPGA'2006*, Nantes, France, 2006.

National Conferences with selection committee:

[Christie, Normand, Truchet 2006] M. CHRISTIE, **J.-M. NORMAND**, C. TRUCHET, “Calcul d’approximations intérieures pour la résolution de Max-NCSP”. In *JFPC'06, Deuxièmes Journées Francophones de Programmation par Contraintes*, pp. 99-108, Nîmes, France, 2006.

[Normand, Christie 2005] **J.-M. NORMAND** and M. CHRISTIE, “Le partitionnement sémantique appliqué au problème de composition virtuelle”, In *18^{èmes} journées de l’Association Française d’Informatique Graphique*, AFIG, Strasbourg, France, 2005.

Habilitation Thesis:

[Normand 2021] **J.-M. NORMAND**, “Contribution à l’étude de la perception en Réalité Mixte”. Manuscrit pour l’obtention de l’Habilitation à Diriger les Recherches, Université de Nantes, 2021.

PhD Thesis:

[Normand 2008] **J.-M. NORMAND**, “Placement de caméra en environnements virtuels (Virtual Camera Control)”. Thèse de Doctorat en Informatique, Université de Nantes, 2008.

Scientific Activities

Awards

- 2019 Best Conference Paper award at the IEEE Virtual Reality Conference (21.5%) [Peillard et al. 2019a]
- 2008 Best Student paper award at the CP'08 Conference (32%) [Normand et al. 2008]

Member of PhD Thesis Committees

- January 2019 Geoffrey GORISSE's PhD defense on "Impact of Viewpoint and of Avatar Fidelity on the Sense of Presence and Embodiment in Immersive Virtual Environments" at the LAMPA laboratory, Laval, France – Examiner.
- April 2017 Barteld POSTMA's PhD defense on "Serious Auralization" at the LIMSI laboratory, Orsay, France – Examiner.

Supervision of Students and Post-Doctoral Fellows

Post-doctoral Fellows

- 2016–2018 Muhannad ISMAEL (from 01/09/2016 until 28/02/2018). Working in the AR'n'BIM SME project from the "Pôle Images et Réseaux" on Markerless Indoor Augmented Reality applied to construction site monitoring.
Supervision: **Jean-Marie NORMAND (50%)**, Guillaume MOREAU (50%)

PhD Students

- 2022– Pooria BANADIAM (PhD started on 07/01/2022) on "The experience of nature in virtual urban environments: analyses and applications in the design of sustainable urban projects". Defense expected in 2025.
Supervision: Daniel Siret (ensa Nantes), Franck Mars (CNRS Research Director), **Jean-Marie NORMAND (20%)**
- 2021 Antonin CHEYMOL (**PhD started on 01/11/2021**) FOURRIER (PhD started on 17/05/2021) on "Collaborative and Interactive Ship Layout in Virtual Reality". CIFRE PhD with the SEGULA TECHNOLOGIES company. Defense expected in 2024.
Supervision: **Jean-Marie NORMAND (30%)**, Mustapha BENAOUICHA (30%, SEGULA TECHNOLOGIES) and Guillaume MOREAU (40%, IMT Atlantique)
- 2021– Nicolas FOURRIER (PhD started on 17/05/2021) on "Collaborative and Interactive Ship Layout in Virtual Reality". CIFRE PhD with the SEGULA TECHNOLOGIES company. Defense expected in 2024.
Supervision: **Jean-Marie NORMAND (30%)**, Mustapha BENAOUICHA (30%, SEGULA TECHNOLOGIES) and Guillaume MOREAU (40%, IMT Atlantique)
- 2020– Olivier ROUPIN (PhD started on **17/05/2021**) on "Collaborative and Interactive Ship Layout in Virtual Reality". CIFRE PhD with the SEGULA TECHNOLOGIES company. Defense expected in 2024.
Supervision: **Jean-Marie NORMAND (30%)**, Mustapha BENAOUICHA (30%, SEGULA TECHNOLOGIES) and Guillaume MOREAU (40%, IMT Atlantique)

- 2019– Martin GUY (PhD started on 01/10/2019) on “Neurophysiological Markers for Characterizing Virtual Embodiment”. Defense expected in October 2022.
Supervision: **Jean-Marie NORMAND (30%)**, Camille Jeunet (30%, CNRS Researcher, Univ. Toulouse) and Guillaume MOREAU (40%)
- 2018– Mohamed OUTAHAR (PhD started on 03/12/2018) on “Combination of visual SLAM and 3D object recognition for fine grain localization of operators in a shop-floor at different scales”. Defense Expected in January 2021.
Supervision: **Jean-Marie NORMAND (50%)** and Guillaume MOREAU (50%)
- 2017–2020 Etienne PEILLARD (PhD started on 01/10/2017 and defended on November 24th 2020) on “Perception and interaction in Augmented Reality”.
Supervision: **Jean-Marie NORMAND (30%)**, Ferran ARGELAGUET (30%, Inria Hybrid) and Guillaume MOREAU (40%)
Now: Assistant Professor at IMT Atlantique
- 2014–2018 Adrien VERHULST (PhD started on 01/10/2014 with a defense expected on May 2018) on “The use of VR to perform Marketing studies on consumer behavior and product perception applied to fruits and vegetables in virtual supermarkets”.
Supervision: **Jean-Marie NORMAND (30%)**, Cindy LOMBART (30%, Audencia Business School) and Guillaume MOREAU (40%)
Now: Post-doctoral Researcher at University of Tokyo.
- 2013–2016 Liming YANG (PhD started on 01/10/2013 and defended on 07/12/2016) on “Robust point pattern matching for Augmented Reality”.
Supervision: **Jean-Marie NORMAND (50%)**, Guillaume MOREAU (50%)
Now: Software Engineer at Amadeus.

Master Students (from 2016-2017, excluding students from ECN)

- 2020 Stella PAGOT (Master 2 Student from Univ. Nantes) on “Development of a VR Application for Constrained Interactive Object Placement in a Realistic Environment”. In Collaboration with Segula Engineering & Services.
Supervision: **Jean-Marie NORMAND (30%)**, Mustapha BENAOUICHA (30%, Segula) and Guillaume MOREAU (40%)
- 2020 Louis LE NINIVIN (Master 2 Student from NTNU) on “VR Platform for Patient Rehabilitation”. In Collaboration with Nantes’ University Hospital (CHU).
Supervision: **Jean-Marie NORMAND (50%)**, Aurélien VAN LANGHENHOVE (50%, Research Engineer, CHU Nantes)
- 2019 Martin GUY (Master 2 Student from Ecole Nationale Supérieure de Lyon) on “Neurophysiological Markers for Characterizing Virtual Embodiment”.
Supervision: **Jean-Marie NORMAND (50%)** and Camille JEUNET (50%, CNRS and Univ. Toulouse)
- 2017 Romain TERRIER (Master 2 Student from ENSAM ParisTech) on “Evaluation of Tracking Errors on a Pick and Place Task in Augmented Reality by a simulation in Virtual Reality”.
Supervision: Maud MARCHAL (33%, MCF INSA Rennes), Ferran ARGELAGUET (33%, CR Inria), **Jean-Marie NORMAND (33%)**.

- 2017 Marta VILLANUEVA (Master 2 Student from Universidad Autónoma de Madrid), on “Onsite Digital Capture of Megalithic Artefacts”. Supervision: **Jean-Marie NORMAND (50%)**, Anthony VENTRESQUE (50%, Senior Lecturer, University College Dublin, Ireland)
- 2017 Théo BASEILHAC (Master 2 Student from INSA Lyon) on “Refinement and fusion for consumer RGB-D cameras applied to the digitalization of archaeological heritage”. Supervision: **Jean-Marie NORMAND (50%)**, Anthony VENTRESQUE (50%, Senior Lecturer, University College Dublin, Irlande).

Invited talks

- Oct. 2018 Invited Speaker at the Young Researchers’ Days (Journées Jeunes Chercheurs) during the French “Journées de la Réalité Virtuelle” j•FRV 2018, Evry, France <https://jrv2018.sciencesconf.org/>
- Oct. 2016 Invited Talk at the Interactive Media Lab (led by Prof. Maki SUGIMOTO) and the Hyper Vision Research Laboratory (led by Prof. Hideo SAITO) Keio University, Japan.
- Nov. 2012 Invited Talk at the seminar of the “Visualization Technology Group” of Duke University, NC, USA.
- Mar. 2012 Speaker at the “Augmented Human 2012” Conference as a representative of the French Virtual Reality Association (AFRV) in a Panel on VR.
- Dec. 2010 Speaker at the “Real and Virtual Human” workshop during the 5th Conference of the French Virtual Reality (5^{es} Journées de l’AFRV).
- July 2008 Invited Talk at UPC (Universitat Politècnica de Catalunya), Barcelona, Spain, for the EventLab seminar led by Pr. Mel SLATER.

Visiting positions

- Sep. 2019 Visiting Professor at the Augmented Vision Laboratory of the Tokyo Institute of Technology, led by Pr. Yuta ITOH. From September 7th to 15th 2019.
- July 2019 Visiting Professor at the Augmented Vision Laboratory of the Tokyo Institute of Technology, led by Pr. Yuta ITOH. From July 7th to July 15th 2019.
- Oct.–Nov 2016 Visiting professor at the Interactive Media Lab of the Keio University, Japan, led by Pr. Maki SUGIMOTO. From October 16th to November 4th 2016.
- April–July 2006 Invited researcher at the University of Newcastle-upon-Tyne (UK) by Pr. Patrick OLIVIER within the Égide PAI Alliance “From Storyboards to Animation” project.

International Projects

- Jan. 10–Feb. 11 Post-doctoral researcher and Project Leader for the Universitat de Barcelona within the BEAMING European project (Integrated European Project), FP7 EU Collaborative Project (#248620).
- Mar. 09–Jan. 10 PRESENCIA (Integrated European Project), FP6 (#27731) et IMMERSENCE (Integrated European Project, FP6 #27141).

National Projects

- 2019–2020 CARISM Project: “Collective Augmented Reality and Immersive Systems for Museography”. Collaboration with regional SMEs Mazedia and Dynamixyz and the PACCE LS2N Team. Position: ECN Leader. ECN Budget: 60k€.
- 2017–2019 GHOSTi Project: “Using Virtual Reality for Neuropathic Pain Rehabilitation in Clinical Trials”. Collaboration with Nantes’ University Hospital and the SIMS Team (specialists in Signal Processing) from LS2N/ECN. Position: Team Leader VR work-packages. ECN Grant: 25k€.
- 2016–2018 AR’n’BIM: Augmented Reality for building construction. Funding: Pôle Images & Réseaux - SME/BPI (French Public Bank for Investment), ECN Budget: 100k€. Position: ECN Leader.
- 2012–2016 “ARTUR: Shop-floor of the future”. Position: Leader of the VR/AR work-packages. Total Project Budget: 1M€. Funding: Pays de la Loire, French Regional project.
- 2012 March to September. MERVI project on “Mutualization of immersive Virtual Reality equipment”. Position: Post-doc. Funding: French Regional project.
- 2011–2012 March 2011 to February 2012. iMMERSION project: “Augmented Reality on Consumer Grade Mobile Phones”. Position: Post-doc. Partnership between École Centrale de Nantes and the regional companies RippleMotion and Cédreo. Funding: Images & Réseaux - SME/ French Public Bank for Investment, amount: 100k€.

International Collaborations

- 2019- Yuta ITOH, Augmented Vision Laboratory, Tokyo Institute of Technology. Collaboration on: “Perception in Augmented Reality”.
- 2016- Maki SUGIMOTO, Interactive Media Lab, Keio University. Collaboration on: Facial “Expressions Detection in VR, Interaction in VR”.
- 2015 Hideaki UCHIYAMA, Kyushu University, Japan. Collaboration on: “3D Surface Reconstruction and SLAM”.
- 2009-2014 Mel SLATER, Professor, ICREA & Universitat de Barcelona, leader of the EventLab, Barcelona Spain. Collaboration on “Virtual embodiment”.

National Collaborations

- 2019- Camille JEUNET, CNRS Researcher, Univ. Toulouse. Topic: “Neurophysiological Markers for Virtual Embodiment”.
- 2017- Vincent ROUALDES and Aurélien VAN LANGHENHOVE, Nantes University Hospital. Topic: “Virtual Reality and Neurofeedback for Neuropathic Pain Rehabilitation”.
- 2017- Anatole LÉCUYER, Inria Senior Researcher and Ferran ARGELAGUET, Inria Researcher, Hybrid Team, Rennes. Topic: “Perception and Interaction in Augmented Reality, Virtual Embodiment”.

Member of Program Committees

- ISMAR 2022 IEEE International Symposium on Mixed and Augmented Reality, Journal Track, October 2022.
- VR 2022 IEEE Conference on Virtual Reality and 3D User Interfaces, Conference Track, March 2022.
- SIGGRAPH Asia 2021 XR Program Committee
- ISMAR 2021 IEEE International Symposium on Mixed and Augmented Reality, Journal Track, October 2021.
- VR 2021 IEEE Conference on Virtual Reality and 3D User Interfaces, Conference Track, March 2021.
- VR 2020 IEEE Conference on Virtual Reality and 3D User Interfaces, Conference Track, March 2020.
- CoG 2020 2020 IEEE Conference on Games, Virtual And Augmented Reality Special Track Chair, 2020.
- GRAPP 2020 15th International Conference on Computer Graphics Theory and Applications, 2020.
- AH 2020 Augmented Humans Conference, Kaiserslautern, Germany, March 2020.
- VR 2019 IEEE Virtual Reality 2019 Conference Track, March 2019.
- VR 2018 IEEE Virtual Reality 2018 Conference Track, March 2018.
- AH 2018 9th Augmented Human International Conference, February 2018.
- MVA 2017 15th International Conference on Machine Vision and Applications, May 2017.
- AH 2017 8th Augmented Human International Conference, March 2017.
- VRCAI 2016 15th ACM SIGGRAPH International Conference on Virtual-Reality Continuum and its Application in Industry, December 2016.
- VR 2016 IEEE Virtual Reality 2016 Conference, March 2016.
- AH 2016 7th Augmented Human Conference, February 2016.

Reviewing activities

I regularly review for the following international journals:

- Frontiers in Robotics and AI
- IEEE Transactions on Visualization and Computer Graphics (IEEE TVCG)
- PLoS ONE
- The Visual Computer (TVCG)
- Journal on Multimodal User Interfaces
- Interacting with Computers
- IEEE Computer Graphics and Applications (CGA)
- Computer Animation and Virtual Worlds (CAVW)

I also reviewed for the following international conferences (from 2015):

- **ISMAR**: IEEE International Symposium on Mixed and Augmented Reality – 2022, 2021, 2020, 2019, 2018, 2017, 2016, 2015
- **VR**: IEEE Virtual Reality Conference – 2022, 2021, 2020, 2019, 2018, 2017, 2016
- **CHI**: ACM CHI Conference on Human Factors in Computing Systems – 2020, 2017
- **AIVR**: IEEE International Conference on Artificial Intelligence & Virtual Reality – 2019, 2018
- **SAP**: ACM Symposium on Applied Perception – 2019
- **MM**: ACM on Multimedia Conference – 2017
- **3DUI**: IEEE Symposium on 3D User Interfaces – 2017, 2016 (now merged with IEEE VR)
- **AH**: Augmented Humans International Conference – 2020, 2019, 2018, 2017, 2016

I am “Review Editor” for the Virtual Environments section of the international journal “Frontiers in Robotics and AI”: <https://www.frontiersin.org/journals/robotics-and-ai/sections/virtual-environments>

I reviewed projects for the French ANR (Agence Nationale de la Recherche):

- ANR JCJC 2013 (Project for Young Researchers, PhD +10 years maximum)
- ANR PRCI 2017 (Collaborative International Projects)

Conference Organization

- 2022 **Program Co-Chair** of ICAT-EGVE2022, the joint International Conference of the 32th International Conference on Artificial Reality and Telexistence and the 27th Eurographics Symposium on Virtual Environments. November-December 2022, Yokohama, Japan. <http://icat.vrsj.org/2022/>
- 2017 **Deputy General Chair** of the IEEE 16th International Symposium on Mixed and Augmented Reality (ISMAR 2017). 345 participants.
General Chairs: Guillaume MOREAU (AAU, École Centrale de Nantes) and Anatole LÉCUYER (Inria Hybrid, Rennes). <https://ismar2017.sciencesconf.org/>
- 2008 Member of the Organizing Committee of the “4èmes Journées Francophones de Programmation par Contraintes”, JFPC’08, Nantes, France, 2008 (~100 participants). <http://www.lina.sciences.univ-nantes.fr/JFPC08/>
- 2006 Member of the Organizing Committee of the “12th International Conference on Principles and Practice of Constraint Programming” (CP’06), Nantes, France (~250 participants) <http://www.sciences.univ-nantes.fr/cp06/>

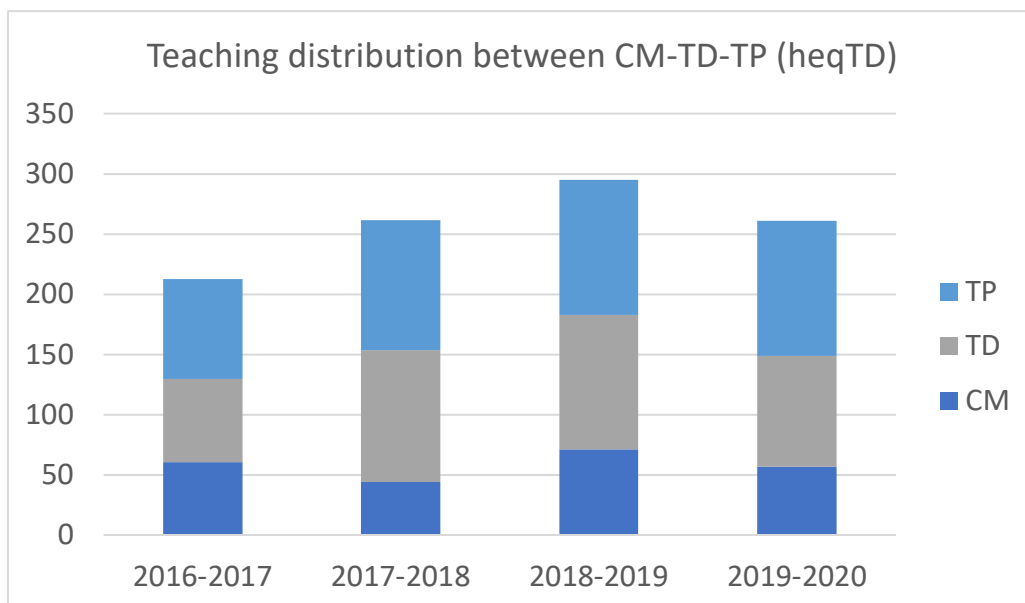
Teaching Activities

I teach on average 255h every year since I joined the Computer Science and Mathematics Department of the École Centrale de Nantes. I mostly teach in the Virtual Reality major (see below) as well as the Computer Science major, both regrouping engineering M1 and M2 students. Since my PhD I have always been very committed to teaching and continue to do so now.

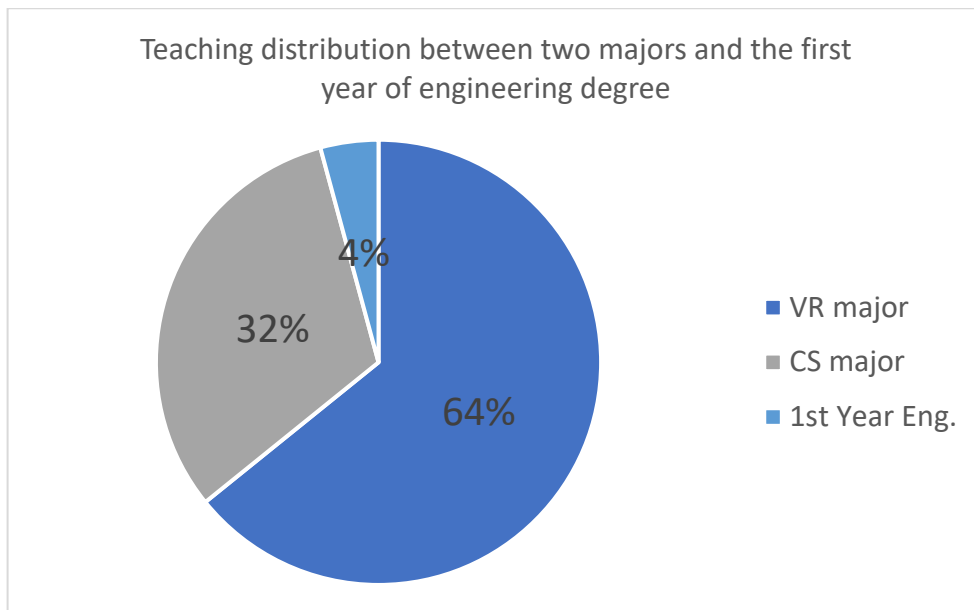
In 2014-2015, ECN decided to pursue a reform for the 2nd and 3rd year students of the engineering degree. The director decided to create disciplinary options that would regroup both 2nd and 3rd year students in the same classes. As a consequence, we decided, along with Prof. Guillaume Moreau, to create a new major centered on Virtual and Augmented Reality. We created from scratch a set of 12 classes adding up to ~470h of teaching mainly in Computer Science (C++, Git, etc.), Computer Graphics (OpenGL, Shaders, etc.), 3D Interaction, VR related topics (such as the human visual and vestibular system, etc.) but also Data Visualization, Computer Vision and Augmented Reality.

We believed this would serve two purposes: (i) offer students a set of skills that is original (ECN is, to the best of our knowledge, the only institution to offer ~470h related to those technologies) as well as very popular among companies and (ii) educate our students to our research topics and motivate them to pursue a career in research. This has proven fruitful since Etienne PEILLARD, who is currently pursuing a PhD with Prof. Moreau and myself, was enrolled in the first year of this VR major.

First I present a chart summarizing my teaching for the last four academic years (2016-2017 until 2019-2020):



I mainly teach in two different majors at ECN: the VR major and the CS major. I also teach sporadically in the 1st year Engineering curriculum, as presented in the following chart:



Here is a list of my duties related to teaching:

- Sep. 2020 - ECN Deputy Dean of Studies for 2nd and 3rd years (~700, eq. M1 and M2) Engineering Students.

- Jan.-Dec 2020 Member of the ECN Jury for Engineering Students, composed of 4 teachers and the Director of ECN, the Deans of Studies and the Deputy Dean of Studies in Charge of the Engineering Degree. The jury takes decisions regarding the students.

- 2019-2020 Corresponding Member of the ECN International Relations for United Kingdom, Australia, New-Zealand and Ireland. My duty is to counsel and advise ECN students who wish to pursue a double degree in these countries.

- Sept. 2016- Head of the “Virtual Reality” major at Ecole Centrale de Nantes.
Students: ~25. 2nd and 3rd year engineering students (i.e. M1 and M2 students).
Curriculum: ~470h of classes dedicated to Virtual Reality and related fields, namely: Computer Science, Computer Graphics, Cognitive Sciences, Computer Vision, Human-Computer Interaction, Scientific Visualization.
Missions of the Head: Managing teachers and classes, Managing schedule, Managing students, Helping students find internships as well as monitoring them during those internships. Managing the room dedicated to the students and the hardware (i.e. maintaining hardware, installing software, etc.)

- Sept. 2016- Mentor for ~15 first and second year engineering students at ECN. This duty consists of helping students in their curriculum, answering their questions and guiding them in different steps during their curriculum.

- 2014-2016 Co-Head and Co-Creator of the “Virtual Reality” major at ECN along with Pr. Guillaume MOREAU (the head of the minor in 2014-2015 and 2015-2016).

I am in charge of the following classes. This includes, developing the curriculum, creating the teaching material (classes, tutorials and practicals), creating as well as grading the exams.

- 2019- Advanced Concepts in Virtual and Augmented Reality. Lecture for the “Virtual Reality” major (~25 students per year). Lectures: 15h; Practicals: 15h.
- 2018-2020 Guest lecturer Ecole Polytechnique in the Masters’ “Artificial Intelligence & Advances Visual Computing”. Lectures and practicals (6h) about Augmented Reality.
- 2016- Fundamentals of Virtual Reality. Lecture for the “Virtual Reality” major (~25 students per year). Lectures: 15h; Practicals: 15h.
- 2016- Computer Vision and Augmented Reality. Lecture for the “Virtual Reality” major (~25 students per year). Composed of 8h of lectures and 24h of practicals.
- 2014- Object-Oriented Programming in Java. Lecture for the “Computer Science” and “Digital City” majors (~65 students per year). Lectures: 10h; Practicals: 20h.
- 2014- Web Programming. Lecture for the “Computer Science” major (~40 students per year). Lectures: 6h; Practicals: 26h.
- 2014- Computer Graphics. Lecture for the “Virtual Reality” major. (~25 students per year). Lectures: 10h; Practicals: 20h.