

IM.M.ERSION

IMAGINATION, INTERACTION ...

immersion.fr

SHORT PROFILE 1

Immersion: Technologies that place people at the core of decision making.

Created in 1994 Immersion is European expert in virtual reality, augmented reality and collaborative solutions in the fields of industry and research. Its ambition? Develop industrial projects to achieve a human and technological success.

As a pioneer, Immersion has built its know-how around customized virtual reality solutions and is now developing its own innovative products including Shariing: a presentation and collaboration software. Its activity is at the crossroads between immersive 3D, collaborative tools and decision support. Immersion supports companies in their digital transformation and helps them to adapt new working methods.

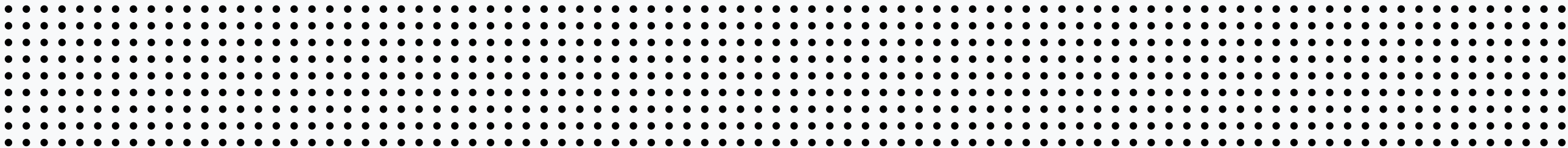
Co-founded and managed by Christophe Chartier, Immersion meets the requirements of large international companies



as well as mid-sized companies and SMEs.

Today, the company has more than 600 installations worldwide, 20 patents and a branch in Singapore to develop its activities in South-East Asia.

Based on these years of experience in the field and an active RTD department, IMMERSION invents, prototypes and produces innovation for long time clients. Thus, the company has been identified and selected by Microsoft as HoloLens Partner to deploy Mixed-Reality in the industry. IMMERSION RTD department is a team of 15 people, most of them being doctors, engineers, or sector experts, featuring multi-disciplinary capabilities such as software and hardware development, or human factors and interaction design. It takes advantage of two other departments giving an exhaustive overview of its markets in terms of technologies and requirements:



The RTD department is now one of the major activities of IMMERSION, since the many abilities exhibited by this department are providing the company with the capability to develop advanced hardware devices and to bring research ideas into new products. The close collaboration between IMMERSION and industrial users ensures such research and development work is on par with the real-world users' constraints. Its knowledge of the virtual reality domain, its unique multidisciplinary skills and proven research capabilities make the company a partner of choice as soon as new devices for 3D interaction, 3D visualization or extensive collaboration are to be created.

IMMERSION has therefore contributed to create new collaborative tools for security and defence experts, for historical industries or creative industries. The RTD department has been involved or is still involved in multiple EC funded projects: WAVE, INSCAPE, CRIMSON, OPENINTERFACE, VCITY, TASS, INDIGO, ESPONDER, MAGELLAN, VASCO.





These projects were also an opportunity for the company to create its intellectual property by the deposit of patents with a high potential commercial value:

**FR2998389, FR3026884, FR3026874, FR3026878,
FR3035249, WO2014079902, WO2016166424,
WO2016050960, WO2016050949, WO2014079902,
WO2016050948, WO2016050960, WO2016050949,
US 9,778,779**

These results are also presented in the most prestigious journals and conferences with internationally acknowledged experts (including SIGGRAPH, Eurographics, IEEE VR, and others).

These elements testify the world-class expertise of IMMERSION in the following fields: 3D computer graphics, Virtual/Augmented/Mixed realities, Human Computer Interaction.

4 LIST OF PUBLICATIONS

Distant Assist Cursor (DAC):

Designing an Augmented Reality System to Facilitate Remote Collaboration for Novice Users. Kervegant C., Castet J., Vauchez J., and Bailly C. In Interactive Surfaces and Spaces (ISS '21 Companion), November 14–17, 2021, Lodz, Poland. ACM, New York, NY, USA, 4 pages.
<https://doi.org/10.1145/3447932.3490520>

3D Multitouch:

when tactile tables meet immersive visualization technologies. de la Rivière J.B., Kervégant C., Orvain E., Dittlo N., Courtois M. Emerging Technologies, Siggraph 2010 Talk, July 2010.

Immersive Multitouch Workspace:

Bossavit B., de la Rivière J.B, Da Luz T., Courtois M., Kervegant C., Hachet M. Siggraph 2011 Emerging Technologies, August 2011.

Simpler Interfaces for Better 3D Simulation:

de la Rivière J.B, Castet J., in Proceedings of EuroVR 2014, December 8-10. Bremen, Germany.

Exploring the Physical Design Space for Situation Awareness and Performance in the Interactive Cockpit:

Letondal C., Castet J. Castet, Vinot J-L, de la Rivière J.B., Pauchet S. TEI 2014, 8th International Conference on Tangible, Embedded and Embodied Interaction, Feb 2014, Munich, Germany.

Authoring and Living Next-Generation Location-Based Experiences:

O. Balet, B. Koleva, J. Grubert, K. M. Yi, M. Gunia, A. Katsis, J. Castet, in the proceedings of the IEEE VR 2015, 23-27 March 2015, Arles.

A TUI Platform for your Desktop:

Raymond F., Semelle L., Courtois M., Kervegant C., Graeff D., Castet J., and de la Rivière J.B. In Proceedings of the 2015 International Conference on Interactive Tabletops & Surfaces (ITS '15). ACM, New York, NY, USA, 385-387.

Continuous Mental Effort Evaluation During 3D Object Manipulation Tasks Based on Brain and Physiological Signals:

Wobrock D., Frey J., Graeff D., de la Rivière JB., Castet J., Lotte F. Human-Computer Interaction – INTERACT 2015. Lecture Notes in Computer Science, vol 9296. Springer.

Framework for Electroencephalography-based Evaluation of User Experience:

Frey J., Daniel M., Castet J., Hachet M., Lotte F.. ACM. CHI '16 – SIGCHI Conference on Human Factors in Computing System, May 2016, San Jose, United States

Assessing the Security of Buildings: A Virtual Studio Solution:

Alexandre Ahmad, Olivier Balet, Arjen Boin, Julien Castet, Maureen Donnelley, Fabio Ganovelli, et al. (2016), ISCRAM 2016 Conference Proceedings – 13th International Conference on Information Systems for Crisis Response and Management. Rio de Janeiro, Brasil

3D Multitouch and Connected Displays for the Future Interactive and Collaborative Display Systems:

Jb de la Rivière, Julien Castet, invited paper, Display Week, Los Angeles Convention Center, CA, May 2016.

Touch hologram in mid-air:

Cédric Kervegant, Félix Raymond, Delphine Graeff, and Julien Castet. In ACM SIGGRAPH 2017 Emerging Technologies (SIGGRAPH '17). ACM, New York, NY, USA, Article 23, 2 pages.

TRANSMIXR – XR and Media – 2022/2025

TransMIXR is a European project under the Horizon Europe Framework Programme. The consortium is composed of various organisations from twelve European countries. The project consists of 8 representatives from the CCS and 12 industrial and academic partners. They bring together the interdisciplinary skills and domain expertise needed to create a range of human-centred tools for remote content production and consumption via social XR.

TRANSMIXR aims to create deeper cross-border collaboration between media organisations and the inclusion of European citizens as co-creators of content.

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PI5G – Immersive platform and 5G – 2021/2024

PI5G is a project funded by the France Relance plan as part of the Resilience call for projects for a period of 3 years, which aims to accelerate the development of products/services combining immersive technologies and 5G for the industry 4.0

Immersion has contributed to this thanks to its expertise in remote collaboration, in particular thanks to its Shariing solution.

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Evolved5G – XR and 5G – 2019/2022

EVOLVED-5G is a EU H2020 ICT-41-2020 funded research 5G-PPP project realised by 21 partners. It aims at testing, validating and certifying, in a vendor-agnostic experimentation 5G platform, Industry 4.0 NetApps. EVOLVED-5G proposal is built on top of two 5G-PPP ICT-17 experimentation infrastructures in Athens and Malaga, which have been developed in the framework of 5GENESIS project.

Within the project, IMMERSION deals with Mixed Reality assisted manufacturing. Its objective is to deploy its software bricks on 5G infrastructures.

This contribution will enable suppliers to be informed of the requirements for such applications and will allow IMMERSION to have product available in advance on the market..

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Tactility – XR technologies – 2019/2022

TACTILITY is a European Horizon 2020 project that incorporates rich and meaningful tactile information into novel interaction systems with virtual environments, increasing the quality of immersive virtual reality and of tele-manipulation. It aims to design and prototype tactile feedback gloves for extended reality (XR) experiences and to evaluate the market launch of these new innovations.

Within the project, IMMERSION deals with User's requirements in order to keep the project relevant to market needs, and thus trying to build a consistent business model. IMMERSION has also to design a use case and prototype this one with the Tactility gloves.

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IRON-MEN – AR and Factory of the futur– 2019/2021

In a world that has become unpredictable, the industry faces daily complexity on an unprecedented scale. This situation is transcribed in the factories by exploding training needs to increase the versatility of the teams. IRON-MEN solution uses augmented reality (AR) in a unique way to meet this adaptability imperative. Passing on knowledge and learning has never been so effective in the field.

IRON-MEN project aims to put the augmented operator at the heart of tomorrow's factory through the design of a mobile AR business tool. The role of Immersion, as a specialist in Augmented Reality experiences on this project, is to develop the interactive software interface used by the operators.

The adaptability of the IRON-MEN project in an industrial environment will then be tested in the elm production sites.

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ULISS - the cockpit of the future – 2016/2020

ULISS is a research project funded by the DGAC (French Civil Aviation Authority) aiming to design, prototype and certify an innovative cockpit for business aircraft. The purpose is to design a new visualization, interaction and collaboration environment enabling the crew to carry out operational work under optimal conditions while considering the spatial constraints of new cockpits. This international program involves the Japanese YOKOGAWA (screen technologies) that provides technical elements disrupting the existing one.

In this context, IMMERSION works on the topics of visualization and interaction with digital data required for flying. To this end, the research team must submit innovative solutions allowing to set up the digital environments in a flexible way to Thalès. IMMERSION's mission is to develop software and hardware elements in order to build various displays and touch interactive solutions.

4DCollab - Interactive tools for collaborative 4D BIM planning – 2018/2023

FollowKnee is one of the ten University-Hospital Research projects selected at the end of 2017 by the French government, as part of the “Investissements d’Avenir” (Investments for the future) program. The purpose of this e-health project is to develop a connected knee prosthesis designed to improve the follow-up of patients. FollowKnee was conceived to revolutionize knee related treatment and the overall care of the patient, ahead of the operation all the way to its post-operative follow-up. As a project partner, IMMERSION's role is to study, design and produce the Mixed Reality experience that will help surgeons in the operating room to optimize the implementation of this innovative prosthesis.

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Followknee - Mixed Reality as a tool for knee surgery – 2018/2023

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Vasco – Share security concepts – 2014/2017

Vasco is a research project funded by the European Commission aimed to design a collaborative tool allowing professionals to share security concepts for the protection of government buildings.

In the context, IMMERSION working on the issues of visualization and manipulation digital data. For this, the research team must provide a mobile touchscreen adapted for horizontal and vertical use. Brick software is also associated with this device to ensure multi-expert collaboration with a set of heterogeneous data. Finally, IMMERSION’s mission is to design and produce tangible objects to help measure on geographic information systems used to design security concepts.

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SystemSol – Industries 4.0 – 2015/2017

SystemSol is a research project financed by the Aquitaine Region. It aims at designing and implementing a factory concept of the future. This concept must address design problems and supply management in a coherent way. The project is structured around Sunna Design needs. Sunna Design is a young innovative company who designs and markets LED solar street lighting solutions, specifically adapted to binding climate environments.

In this context, IMMERSION is working on issues of the 3D model use within the production chain. The ultimate aim of this project is to provide an operational tool for Sunna Design factories. The options explored are constrained by a medium term objective regarding robustness and reliability.

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AP2 – Collaboration in the building trade - 2016/2018

collaborative work with the Building Information Modeling (BIM). Within the project, IMMERSION deals with these processes by mixing IMMERSION and collaboration. The initial technical challenge is to provide a software solution ensuring a consistency of a shared environment between several users in real time.

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Magellan – Authoring process for creative industries – 2013/2017

Magellan is an European research project which aims to develop a platform to create geolocated games. IMMERSION has to design and set up a combination of hardware and software which enables to non-experts to create a geolocated game.

MAGELLAN’s overall vision is to enhance the creativity of game designers by establishing a web platform for cost-effectively authoring, publishing, executing, and experiencing location based games. This unique integrated web-based infrastructure will be targeted at both skilled professional authors, but also at everyday authors without deep technical skills.

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Esponder – Real-time data-centric technologies supporting first responders - 2010/2015

The E-SPONDER platform is a suite of real-time data-centric technologies and applications, which will provide actionable information and communication support to first responders that act during abnormal events (crises) occurring in critical infrastructures. This information will enable improved control and management, resulting in real time synchronization between forces on the ground (police, rescue, fire-fighters) and out-of-theatre command and control centres. The approach guiding the E-SPONDER project is based on the fusion of variable forms of field-derived data within a central system which will then provide information analysis and decision support applications at designated control centres

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TASS – Total Airport Security System – 2012-2016

Tass is an European research project aiming at developing a flight safety management tool. IMMERSION's role is to set up a combination of equipment and software helping the supervision operators have an ergonomic tool to reach all the information collected on the ground.

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Indigo – Crisis management

Indigo aims to provide a revolutionary solution that will enable inter-organisational preparation and support response to transboundary crises and disasters, in any environment. Indigo allows for inter-organizational exercising, information sharing and analysis. The proposed system proved an essential and integrated tool for training personnel, planning operations, and facilitating crisis management and co-operation across organisations and nations.

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V-City – The Virtual City, Integrated Project/FP6 IST, 2006-2008

Financed by the EU within the FP7, the V-CITY project aims at restoring cities in 3D and allows interaction and navigation inward the layout. Partner with the consortium, IMMERSION's objective is to develop new interfaces allowing navigation within these environments. The first developers notably based their work on adapting multitouch tactile technologies to urban 3D environments applications.

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