Julien Tierny
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75005 Paris, France.
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Web: https://julien-tierny.github.io/

Research Scientist

PROFESSIONAL EXPERIENCE

2010 – Present ⋆ *CNRS Permanent Researcher*, Topological Data Analysis and Visualization,
2014-Present: Sorbonne Universite, LIP6, Paris, France.
2010-2014: Telecom ParisTech, LTCI, Paris, France.

2008 – 2010 ⋆ *Post-doctoral research associate* (computational topology for visualization and graphics),
Scientific Computing and Imaging Institute, University of Utah, USA;

EDUCATION

2016 ⋆ *Habilitation in Computer Science*, Sorbonne Universite, France;
Thesis title: *"Contributions to Topological Data Analysis for Scientific Visualization"*;
Committee: I. Bloch, J.-D. Fekete, P. Frey, H. Hagen, C. Johnson, B. Lévy, P. Ricoux, W. Schroeder.

2005 – 2008 ⋆ *Ph.D. in Computer Science*, Lille University, France;
Thesis title: *"Reeb graph based 3D shape modeling and applications"*;
Committee: A. Baskurt, B. Lévy, C. Labit, A. Srivastava, S. Tison.
Advisors: M. Daoudi and J.-P. Vandeborre.
Summa cum laude (*"Mention très honorable"*).

2005 ⋆ *M. Sc. in Computer Science*, Lille University;
Summa cum laude (*"Mention très bien"*), valedictorian.

⋆ *Engineer degree at TELECOM Lille 1*;
(French *"Grande École"*, Information Technology Institute, License and Master);
Specialization: Multimedia software engineering, valedictorian.

2000 ⋆ French scientific *Baccalauréat* ;
Summa cum laude (*"Mention très bien"*).

AWARDS

2019 ⋆ **European Research Council (ERC) consolidator grant**;
⋆ **Best Paper Honorable Mention Award**, IEEE VIS 2019;
⋆ **Best Paper Award**, IEEE LDAV 2019;
2018 ⋆ **Best Paper Honorable Mention Award**, IEEE LDAV 2018;
2017 ⋆ **Best Paper Honorable Mention Award**, IEEE VIS 2017;
⋆ Selection of our open-source software platform TTK (Topology ToolKit) among O'Reilly's daily Four short links.
⋆ Selection of my paper "Jacobi Fiber Surfaces for Bivariate Reeb Space Computation" as a notable article in computing in 2016 by the journal ACM Computing Reviews.
⋆ Selection of my paper "Jacobi Fiber Surfaces for Bivariate Reeb Space Computation" as a notable highlight in visualization by the magazine IEEE Computing Now (February 2017 issue)
2016 ⋆ **Best Paper Award**, IEEE VIS 2016;
⋆ **Honorable Mention Award**, IEEE Scientific Visualization Contest 2016;
2013 ⋆ **Best Paper Award**, Eurographics Symposium on Parallel Graphics and Visualization 2013.
2008 ⋆ **Fulbright research fellowship** (US Department of State), Lavoisier research fellowship (France);
2005 ⋆ French Research Ministry Ph.D. fellowship;
⋆ **IBM Top Student Recognition Event** (EMEA), Stuttgart, Germany. Final contest winner (in group).
2004 ⋆ French Research Ministry M.Sc. Excellence Fellowship.

RESEARCH

Research Interests

Research fields
- ⋆ Topological Data Analysis, Visualization, Uncertainty; Computational Topology, Morse Theory;

Fields of interest
- ⋆ Meshing, parameterization, Riemannian geometry, computational photography.

Funded Projects

ERC (Consolidator)
- ⋆ *"In-situ Topological Reduction of Scientific 3D Data" (TORI).* Principal investigator, September 2020 - September 2025.

ANR
- ⋆ *"Tremplin"*, Principal investigator, Late 2019 - Early 2021.

H2020-FET
- ⋆ *"Vestec: Visual Exploration and Sampling ToolKit for Extreme Computing"* Work package leader, March 2018 - March 2021.

CIFRE (Total)
- ⋆ *"Topological Reduction for Very Large Data Analysis"* Principal investigator, July 2016 - July 2019.

CIFRE (Kitware)
- ⋆ *"In-situ Topo"*: In-situ Topological Data Analysis. Principal investigator, February 2016 - February 2019.

FSN
- ⋆ *"AVIDO"*: In-situ uncertain data analysis and visualization. Local investigator, October 2015 - October 2018.

ANR (CONTINT)
- ⋆ *"CrABEx"*: Example-based 3D modeling support. Local investigator, November 2013 - November 2017.

RTRA-Digiteo
- ⋆ *"Uncertain Topo-Vis"*: Visualization of Uncertain Scalar Fields through Topology Analysis. Principal investigator, May 2013 - Octobre 2014.

Students

Master Students
- ⋆ 2020: Edgar Acker, Hugo Manet, Mathieu Pont.
- ⋆ 2019: Yizhe Wang.
- ⋆ 2018: Léa Sta, Joseph Budin.
- ⋆ 2017: Léo Hauchecorne.
- ⋆ 2016: Michael Michaux.
- ⋆ 2015: Matthew Henry, Charles Gueunet, Guillaume Favelier.
- ⋆ 2014: Chantal Ding, Kenny Peou.

Ph.D. Students
- ⋆ Jules Vidal, September 2018 - September 2021.
- ⋆ Maxime Soler, July 2016 - July 2019. Co-advised with: Mélanie Plainchault and Bruno Conche.
- ⋆ Charles Gueunet, February 2016 - February 2019. Co-advised with: Pierre Forting and Julien Jomier.
- ⋆ Ana-Maria Vintescu, May 2014 - May 2017. Co-advised with: Florent Dupont, Guillaume Lavoué, Pooran Memari.
- ⋆ Mariem Gargouri, November 2011 - June 2015. Co-advised with: Elsa Angelini, Erwan Jolivet, Philippe Petit.
- ⋆ Brian Summa, Doctoral Internship 2011, Ongoing collaborations.

Post-doctoral researchers
- ⋆ Daisuke Sakurai (September 2016 - April 2017, now an associate professor at Kyushu University), Co-advised with Julie Delon.
- ⋆ David Guenther (May 2013 - October 2014, now a software engineer at Sirona Dentals Inc.).

Engineers
- ⋆ Pierre Guillou (2019 - Present).
- ⋆ Guillaume Favelier (2016 - 2019, now a research engineer at INRIA).

Collaborations

International Collaborations
- ⋆ Tulane University, University of Arizona, University of Warsaw, DLR, University of Utah, Clemson University, University of Leeds, Universidade de Sao Paulo, New York University, Lawrence Livermore National Laboratory.

National Collaborations
- ⋆ Kitware, Total, CEA, Institut du Calcul et de la Simulation (Multi-disciplinary Center at Sorbonne Universite), Laboratoire de Chimie Théorique, LIFL, LIRIS, 3DDUO, Renault.

Visiting Professors
- ⋆ Joshua Aaron Levine, University of Arizona (USA), September 2016;
- ⋆ Joshua Aaron Levine, Clemson University (USA), May-June 2013;
- ⋆ Valerio Pascucci, SCI Institute, University of Utah (USA), May-June 2011;

R E S E A R C H (continued)

International Publications

Theses

⋆ **Julien Tierny**
"Contributions to Topological Data Analysis for Scientific Visualization",
Habilitation thesis,
Committee: I. Bloch (President), J.-D. Fekete (Committee), P. Frey (Committee), H. Hagen (Reviewer), C. Johnson (Reviewer), B. Lévy (Reviewer), P. Ricoux (Committee), W. Schroeder (Committee).
Sorbonne Universite, April 2016.

⋆ **Julien Tierny**
"Reeb graph based 3D shape modeling and applications",
Ph.D. thesis,
Committee: S. Tison (President), A. Baskurt (Reviewer), B. Lévy (Reviewer), C. Labit (Committee), A. Srivastava (Committee), M. Daoudi (Advisor), J.P. Vandeborre (Co-advisor).
Lille University, October 2008.

Monograph

⋆ **Julien Tierny**
"Topological Data Analysis for Scientific Visualization",
Springer (Mathematics and Visualization series), 2018.
ISBN 978-3-319-71506-3.

Edited books

⋆ Valerio Pascucci, Xavier Tricoche, Hans Hagen, and **Julien Tierny**,
"Topological Methods in Data Analysis and Visualization: Theory, Algorithms and Applications", Springer, 2011 (ISBN: 978-3-642-15013-5).

Journals

⋆ Harish Doraiswamy, **Julien Tierny**, Paulo J. S. Silva, Luis Gustavo Nonato, Claudio Silva
"TopoMap: A 0-dimensional Homology Preserving Projection of High-Dimensional Data",
IEEE Transactions on Visualization and Computer Graphics
Proc. of IEEE VIS 2020.

⋆ Jonas Lukasczyk, Christoph Garth, Ross Maciejewski, **Julien Tierny**,
"Localized Topological Simplification of Scalar Data",
IEEE Transactions on Visualization and Computer Graphics
Proc. of IEEE VIS 2020.

⋆ Malgorzata Olejniczak, André Severo Pereira Gomes, **Julien Tierny**,
"A Topological Data Analysis Perspective on Non-Covalent Interactions in Relativistic Calculations",
International Journal of Quantum Chemistry
Accepted, 2019.

⋆ Jules Vidal, Joseph Budin, **Julien Tierny**,
"Progressive Wasserstein Barycenters of Persistence Diagrams",
IEEE Transactions on Visualization and Computer Graphics
Proc. of IEEE VIS 2019.
Best Paper Honorable Mention Award.

⋆ Charles Gueunet, Pierre Fortin, Julien Jomier, **Julien Tierny**,
"Task-based Augmented Contour Trees with Fibonacci Heaps",
IEEE Transactions on Parallel and Distributed Systems
Accepted, 2019.

⋆ Guillaume Favelier, Noura Faraj, Brian Summa, **Julien Tierny**,
"Persistence Atlas for Critical Point Variability in Ensembles",
IEEE Transactions on Visualization and Computer Graphics
Proc. of IEEE VIS 2018.

⋆ **Julien Tierny**, Guillaume Favelier, Joshua Levine, Charles Gueunet, Michael Michaux,
"The Topology ToolKit",
IEEE Transactions on Visualization and Computer Graphics
Proc. of IEEE VIS 2017.
Best Paper Honorable Mention Award.

⋆ Brian Summa, **Julien Tierny**, Valerio Pascucci,
"Visualizing the Uncertainty of Graph-based 2D Segmentation with Min-path Stability",
Computer Graphics Forum
Proc. of EuroVis 2017.

⋆ Ana Maria Vintescu, Florent Dupont, Guillaume Lavoué, Pooran Memari, **Julien Tierny**,
"Least Squares Affine Transitions for Global Parameterization",
Journal of WSCG
Accepted, 2017.

⋆ Jonas Lukasczyk, Garrett Aldrich, Michael Steptoe, Guillaume Favelier, Charles Gueunet, **Julien Tierny**, Ross Maciejewski, Bernd Hamann, and Heike Leitte,
"Viscous Fingering: A Topological Visual Analytic Approach",
Applied Mechanics and Materials
Accepted, 2017.

⋆ **Julien Tierny** and Hamish Carr
"Jacobi Fiber Surfaces for Bivariate Reeb Space Computation",
IEEE Transactions on Visualization and Computer Graphics
Proc. of IEEE VIS 2016.
Best Paper Award.

⋆ Pavol Klacansky, **Julien Tierny**, Hamish Carr, Zhao Geng,
"Fast and Exact Fiber Surfaces for Tetrahedral Meshes",
IEEE Transactions on Visualization and Computer Graphics
Presented at IEEE VIS 2016.

⋆ Roberto A. Boto, Julia C. Garcia, **Julien Tierny**, Jean-Philip Piquemal,
"Interpretation of the reduced density gradient",
Molecular Physics
2016, accepted.

⋆ Hamish Carr, Zhao Geng, **Julien Tierny**, Amit Chattopadhyay, Aaron Knoll,
"Fiber Surfaces: Generalizing Isosurfaces to Bivariate Data",
Computer Graphics Forum
Proc. of EuroVis 2015, accepted.

⋆ Sujin Philip, Brian Summa, **Julien Tierny**, Peer-Timo Bremer, Valerio Pascucci,
"Distributed Seams for Gigapixel Panoramas",
IEEE Transactions on Visualization and Computer Graphics
Accepted, 2014.

⋆ Attila Gyulassy, David Guenther, Joshua Levine, **Julien Tierny**, Valerio Pascucci,
"Conforming Morse-Smale Complexes",
IEEE Transactions on Visualization and Computer Graphics
Proc. of IEEE VIS 2014.

⋆ David Guenther, Roberto Álvarez Boto, Julia Contreras Garcia, Jean-Philip Piquemal, **Julien Tierny**,
"Characterizing Molecular Interactions in Chemical Systems",
IEEE Transactions on Visualization and Computer Graphics
Proc. of IEEE VIS 2014.

R E S E A R C H (continued)

⋆ David Guenther, Joseph Salmon, **Julien Tierny**,
"Mandatory Critical Points of 2D Uncertain Scalar Fields",
Computer Graphics Forum,
Proc. of EuroVis 2014.

⋆ Fang Chen, Harald Obermaier, Hans Hagen, Bernd Hamann, **Julien Tierny** and Valerio Pascucci,
"Topology analysis of time-dependent multi-fluid data using the Reeb graph",
Computer Aided Geometric Design, 2013.

⋆ Jean-Marc Thiery, **Julien Tierny**, and Tamy Boubekeur,
"Jacobians and Hessians of Mean Value Coordinates for Closed Triangular Meshes",
The Visual Computer Journal, Ed. Springer,
Accepted, 2013.

⋆ **Julien Tierny** and Valerio Pascucci,
"Generalized Topological Simplification of Scalar Fields on Surfaces",
IEEE Transactions on Visualization and Computer Graphics,
Proceedings of IEEE VIS 2012.

⋆ Brian Summa, **Julien Tierny** and Valerio Pascucci,
"Panorama Weaving: Fast and Flexible Seam Processing",
ACM Transactions on Graphics,
Proceedings of ACM SIGGRAPH 2012.

⋆ Jean-Marc Thiery, **Julien Tierny** and Tamy Boubekeur,
"CageR: Cage-based Reverse Engineering of Animated 3D Shapes",
Computer Graphics Forum,
Accepted 2012, Presented at Eurographics 2013.

⋆ Jean-Marc Thiery, Bert Buchholz, **Julien Tierny** and Tamy Boubekeur,
"Analytic Curve Skeletons for 3D Surface Modeling and Processing",
Computer Graphics Forum,
Proceedings of Pacific Graphics 2012.

⋆ **Julien Tierny**, Joel Daniels II, Luis Gustavo Nonato, Valerio Pascucci and Claudio Silva,
"Inspired Quadrangulation",
Computer Aided Design, Ed. Elsevier,
Proceedings of ACM SPM 2011.

⋆ **Julien Tierny**, Joel Daniels II, Luis Gustavo Nonato, Valerio Pascucci and Claudio Silva,
"Interactive Quadrangulation with Reeb Atlases and Connectivity Textures",
IEEE Transactions on Visualization and Computer Graphics,
Accepted, 2011.

⋆ Tiago Etiene, Luis Gustavo Nonato, Carlos Scheidegger, **Julien Tierny**, Tom Peters, Valerio Pascucci, Mike Kirby and Claudio Silva,
"Topology Verification for Isosurface Extraction",
IEEE Transactions on Visualization and Computer Graphics,
Accepted 2011, Presented at IEEE VIS 2011.

⋆ Peer-Timo Bremer, Gunther Weber, **Julien Tierny**, Valerio Pascucci, Marc Day and John Bell,
"Interactive Exploration and Analysis of Large Scale Simulations Using Topology-based Data Segmentation",
IEEE Transactions on Visualization and Computer Graphics,
Accepted, 2010.

⋆ **Julien Tierny**, Attila Gyulassy, Eddie Simon and Valerio Pascucci,
"Loop surgery for volumetric meshes: Reeb graphs reduced to contour trees",
IEEE Transactions on Visualization and Computer Graphics,
Proceedings of IEEE Visualization 2009.
Volume 15, Number 6, 2009, pp. 1177-1184.

⋆ **Julien Tierny**, Jean-Philippe Vandeborre and Mohamed Daoudi,
"Partial 3D shape retrieval by Reeb pattern unfolding",
Computer Graphics Forum (Eurographics Association), Ed. Blackwell,
Volume 28, Number 1, 2009, pp. 41-55.

⋆ **Julien Tierny**, Jean-Philippe Vandeborre and Mohamed Daoudi,
"Enhancing 3D mesh topological skeletons with discrete contour constrictions",
The Visual Computer Journal Ed. Springer,
Volume 24, Number 3, 2008, pp. 155-172.

Conferences

⋆ Maxime Soler, Martin Petitfrere, Gilles Darche, Melanie Plainchault, Bruno Conche, **Julien Tierny**,
"Ranking Viscous Finger Simulations to an Acquired Ground Truth with Topology-Aware Matchings",
IEEE Symposium on Large Data Analysis and Visualization 2019.
Best Paper Award.

⋆ Thibault Bridel-Bertomeu, Benjamin Fovet, **Julien Tierny**, Fabien Vivodtzev
"Topological Analysis of High Velocity Turbulent Flow",
IEEE Symposium on Large Data Analysis and Visualization 2019 (posters).

⋆ Charles Gueunet, Pierre Fortin, Julien Jomier, **Julien Tierny**,
"Task-based Augmented Reeb Graphs with Dynamic ST-Trees",
Eurographics Symposium on Parallel Graphics and Visualization 2019.

⋆ Talha Bin Masood, Joseph Budin, Martin Falk, Guillaume Favelier, Christoph Garth, Charles Gueunet, Pierre Guillou, Lutz Hofmann, Petar Hristov, Adhitya Kamakshidasan, Christopher Kappe, Pavol Klacansky, Patrick Laurin, Joshua A. Levine, Jonas Lukasczyk, Daisuke Sakurai, Maxime Soler, Peter Steneteg, **Julien Tierny**, Will Usher, Jules Vidal, Michal Wozniak
"An Overview of the Topology ToolKit",
Proc. of TopoInVis 2019

⋆ Jonas Lukasczyk, Jakob Beran, Wito Engelke, Martin Falk, Anke Friederici, Christoph Garth, Lutz Hofmann, Ingrid Hotz, Petar Hristov, Wiebke Köpp, Talha Bin Masood, Ma?gorzata Olejniczak, Paul Rosen, Jan-Tobias Sohns, Tino Weinkauf, Kilian Werner, **Julien Tierny**
"Report of the TopoInVis TTK Hackathon: Experiences, Lessons Learned, and Perspectives",
Proc. of TopoInVis 2019

⋆ Max Kontak, Jules Vidal, **Julien Tierny**,
"Statistical Parameter Selection for Clustering Persistence Diagrams",
Proc. of Super Computing workshop on Urgent HPC 2019

⋆ Maxime Soler, Mélanie Plainchault, Bruno Conche, **Julien Tierny**,
''Lifted Wasserstein Matcher for Fast and Robust Topology Tracking",
IEEE Symposium on Large Data Analysis and Visualization 2018.
Best Paper Honorable Mention Award.

⋆ Maxime Soler, Mélanie Plainchault, Bruno Conche, **Julien Tierny**,
"Topologically Controlled Lossy Compression",
IEEE Pacific Conference on Visualization 2018.

R E S E A R C H (continued)

⋆ Charles Gueunet, Pierre Fortin, Julien Jomier, **Julien Tierny**,
Task-based Augmented Merge Trees with Fibonacci Heaps,
IEEE Symposium on Large Data Analysis and Visualization 2017.

⋆ Ana Maria Vintescu, Florent Dupont, Guillaume Lavoué, Pooran Memari, **Julien Tierny**,
"Conformal Factor Persistence for Fast Hierarchical Cone Extraction",
Proc. of Eurographics 2017 (short papers).

⋆ Charles Gueunet, Pierre Fortin, Julien Jomier, **Julien Tierny**.
"Contour Forests: Fast Muli-threaded Augmented Contour Trees",
IEEE Symposium on Large Data Analysis and Visualization 2016.

⋆ Sujin Philip, Brian Summa, **Julien Tierny**, Peer-Timo Bremer, Valerio Pascucci.
"Scalable Seams for Gigapixel Panoramas",
Eurographics Symposium on Parallel Graphics and Visualization 2013.
Best Paper Award.

⋆ Mariem Gargouri, **Julien Tierny**, Erwan Jolivet, Philippe Petit, Elsa Angelini.
"Accurate and robust shape descriptors for the identification of rib cage structures in CT-images with Random Forests",
IEEE International Symposium on Biomedical Imaging 2013.

⋆ Jean-Christophe Michelin, **Julien Tierny**, Florence Tupin, Clément Mallet, and Nicolas Paparoditis,
"Quality Evaluation of 3D City Building Models with Automatic Error Diagnosis",
Proc. of ISPRS Conference on SSG 2013.

⋆ Emanuele Santos, **Julien Tierny**, Ayla Khan, Brad Grimm, Lauro Lins, Juliana Freire, Valerio Pascucci, Claudio Silva, Scott Klasky, Roselyne Barreto, Norbert Podhorszki.
"Enabling Advanced Visualization Tools in a Web-Based Simulation Monitoring System",
IEEE International Conference on eScience 2009.

⋆ Peer-Timo Bremer, Gunther Weber, **Julien Tierny**, Valerio Pascucci, Marcus Day, John Bell.
"A Topological Framework for the Interactive Exploration of Large Scale Turbulent Combustion",
IEEE International Conference on eScience 2009.

⋆ **Julien Tierny**, Jean-Philippe Vandeborre and Mohamed Daoudi,
"Fast and precise kinematic skeleton extraction of 3D dynamic meshes",
IEEE International Conference on Pattern Recognition 2008, pp. 1-4.

⋆ **Julien Tierny**, Jean-Philippe Vandeborre and Mohamed Daoudi,
"Reeb chart unfolding based 3D shape signatures",
Eurographics 2007, short paper, pp. 13-16.

⋆ **Julien Tierny**, Jean-Philippe Vandeborre and Mohamed Daoudi,
"Topology driven 3D mesh hierarchical segmentation",
IEEE Shape Modeling International 2007, short paper, pp. 215-220.

⋆ **Julien Tierny**, Jean-Philippe Vandeborre and Mohamed Daoudi,
"3D mesh skeleton extraction using topological and geometrical analyses",
Pacific Graphics 2006, pp. 85-94.

⋆ **Julien Tierny**, Jean-Philippe Vandeborre and Mohamed Daoudi,
"Invariant high level Reeb graphs of 3D polygonal meshes",
IEEE 3DPVT 2006, pp. 105-112.

R E S E A R C H (continued)

Book chapters

⋆ **Julien Tierny**, David Guenther, and Valerio Pascucci,
"Optimal General Simplification of Scalar Fields on Surfaces",
Chapter of *"Topological and Statistical Methods for Complex Data"*,
Springer, 2014 (ISBN: 978-3-662-44899-1).

⋆ Stefano Berretti, Mohamed Daoudi, Alberto Del Bimbo, Tarik Filali Ansary, Pietro Pala, **Julien Tierny** and Jean-Philippe Vandeborre,
"3D object indexing", chapter of *"3D object processing: compression, indexing and watermarking"*,
Wiley, June 2008 (ISBN: 978-0-470-06542-6).

Invited Conferences

⋆ **Julien Tierny**, Jean-Philippe Vandeborre and Mohamed Daoudi,
"Geometry flavored topological skeletons: applications to shape handling, understanding and retrieval",
Second DELOS Conference, 2007.

⋆ Mohamed Daoudi, Tarik Filali-Ansary, **Julien Tierny** and Jean-Philippe Vandeborre,
"3D mesh models: view-based indexing and structural analysis",
First DELOS Conference, 2007, Lecture Notes in Computer Science, pp. 298-307.

Technical Reports

⋆ Jules Vidal, Pierre Guillou, **Julien Tierny**,
"A Progressive Approach to Scalar Field Topology",
Submitted, 2020.

⋆ Martin Falk, Christoph Garth, Charles Gueunet, Pierre Guillou, Attila Gyulassy, Lutz Hofmann, Christopher Kappe, Joshua A Levine, Jonas Lukasczyk, **Julien Tierny**, Jules Vidal,
"Topological Data Analysis Made Easy with the Topology ToolKit, What is New?".
IEEE VIS Tutorials 2020.

⋆ Martin Falk, Christoph Garth, Charles Gueunet, Joshua A Levine, Jonas Lukasczyk, **Julien Tierny**, Jules Vidal,
"Topological Data Analysis Made Easy with the Topology ToolKit, A Sequel".
IEEE VIS Tutorials 2019.

⋆ Guillaume Favelier, Charles Gueunet, Attila Gyulassy, Julien Jomier, Joshua Levine, Jonas Lukasczyk, Daisuke Sakurai, Maxime Soler, **Julien Tierny**, Will Usher, Qi Wu
"Topological Data Analysis Made Easy with the Topology ToolKit".
IEEE VIS Tutorials 2018.

⋆ Guillaume Favelier, Charles Gueunet, **Julien Tierny**
"Visualizing Ensembles of Viscous Fingers".
IEEE Scientific Visualization Contest 2016.
Honorable Mention Award.
Poster presentation at IEEE VIS 2016.

⋆ Brian Summa, **Julien Tierny**, Peer-Timo Bremer, Giorgio Scorzelli, and Valerio Pascucci,
"Active-Stitching: Beyond Batch Processing of Panoramas", 2013.

Patents

⋆ *"Seam Network Processing for Panorama Weaving"*
Brian Summa, Valerio Pascucci, **Julien Tierny**
US Patent 20,140,002,488.

Distributed Software

⋆ *the Topology ToolKit*
Open-source C++ library and software collection for efficient and generic topological data analysis and visualization (BSD license).
http://topology-tool-kit.github.io

⋆ *Reeb Space*
Open source library (AGPL license) for bivariate Reeb space computation (implementation of the paper: *"Jacobi Fiber Surfaces for Bivariate Reeb Space Computation"*).

⋆ *Fiber Surfaces*
Open source library for fiber surface computation (implementation of the paper: *"Fast and exact fiber surfaces for tetrahedral meshes"*).

⋆ *Generalized Topological Simplification of Scalar Fields on Surfaces*
Open source library (LGPL license) for general topological simplification on surfaces (implementation of the paper: *"Generalized Topological Simplification of Scalar Fields on Surfaces"*, proc. of IEEE VIS 2012).

⋆ *vtkReebGraph*
Deployment of Reeb graph based visualization techniques into the OpenSource project *Visualization ToolKit* (VTK).

⋆ *SINAMIS Is Not A Mesh Indexing System*,
Benchmarking tools and partial 3D shape retrieval system implementation (paper: *"Partial 3D shape retrieval by Reeb pattern unfolding"*).

Keynote Speaker

2020 ⋆ EuroVis VISGAP Symposium, Sweden.

2015 ⋆ IEEE Shape Modeling International, France.

Invited Talks

2018 ⋆ ACM SIGGRAPH, Vancouver, Canada (invited IEEE TVCG papers).
⋆ French conference on computer science and geometry, Lyon, France.

2017 ⋆ ACM SIGGRAPH, Los Angeles, USA (invited IEEE TVCG papers).
⋆ Center for Data Science at New York University, USA.
⋆ Topology, Computation and Data Analysis, Dagstuhl, Germany.
⋆ Conference on Physical Modeling for Virtual Manufacturing Systems and Processes, Germany.
⋆ Imaging in Paris, Institut Henri Poincaré, France.
⋆ GdR MASCOT-NUM workshop, Institut Henri Poincaré, France.
⋆ INRIA Saclay, France.
⋆ Telecom ParisTech, France.
⋆ Strasbourg university, France.

2016 ⋆ Heidelberg University, Germany.

2015 ⋆ Tulane University, USA.

2014 ⋆ ENS Cachan CMLA, France.
⋆ Uncertainty Forum, CEA, France.
⋆ Franco-Romanian Applied Math Congress, Lyon, France.
⋆ GdR-ISIS AC3D Workshop, Porquerolles, France.
⋆ Leeds University, UK.
⋆ LIRIS, Lyon University, France.

2013 ⋆ Ceremade Seminar, Paris Dauphine University, France.

2012 ⋆ Max Planck Institut für Informatik - Saarbrücken, Germany.
⋆ Clemson University, USA.

2008 ⋆ IGG Research Group, LSIIT, Strasbourg, France.
⋆ LAIC Laboratory, Clermont Ferrand, France.
⋆ Alice Research Group, INRIA Loria, Nancy, Fance.

2006 ⋆ Tours University, Tours, France.

Professional service

Associate Editor	⋆ IEEE Transactions on Visualization and Computer Graphics.
International Program Chair	⋆ IEEE LDAV 2019 (full papers). ⋆ TopoInVis 2019 (full papers). ⋆ IEEE LDAV 2018 (full papers). ⋆ IEEE LDAV 2014 (poster track).
International Program Committee	⋆ IEEE VIS 2017-2019 (full papers). ⋆ EuroVis 2015-2017, 2020 (full papers). ⋆ TopoInVis 2015, 2017 (full papers). ⋆ EG Symposium on Parallel Graphics and Visualization 2017-2019 (full papers). ⋆ SuperComputing 2017-2018 (tutorials). ⋆ IEEE Shape Modeling International 2015 (full papers). ⋆ EuroVis 2013-2014 (short papers). ⋆ Eurographics 2012-2013 (short papers). ⋆ Graphics Replicability Stamp Initiative (2017-).
International journals	⋆ Reviewer for: IEEE Transactions on Visualization and Computer Graphics, Computer Graphics Forum, Computer-Aided Design, Computer-Aided Geometric Design, IEEE Transactions on Image Processing, International Journal of Computer Vision, Theoretical Computer Science, Image and Vision Computing.
International conferences	⋆ Reviewer for: IEEE VIS (2009, 2012-2017), EuroVis (2009, 2013-2017), ACM SIGGRAPH (2012-2013, 2015, 2017), ACM SIGGRAPH Asia (2015), Eurographics (2009-2012, 2015-2017), Pacific Graphics (2011), ACM Solid and Physical Modeling (2008), IEEE Shape Modeling International (2008, 2015), TopoInVis (2013, 2015, 2017), High Performance Graphics (2013), IEEE SIBGRAPI (2009), IEEE ICME (2007-2008).
Recruitment Committee	⋆ Permanent research engineer, INRIA Saclay, 2017. ⋆ Assistant professor in mathematics, applied mathematics or computer science, Sorbonne Universite, 2016.
Ph.D. Thesis Reviewer	⋆ Jonas Lukasczyk (TU Kaiserslautern), 2019. ⋆ Steve Petruzza (University of Utah), 2018. ⋆ Arnaud Bletterrer (Universite Cote d'Azur), 2018.
Ph.D. Thesis Committee	⋆ Alexandre Bone (INRIA - Paris), 2020. ⋆ Maxime Louis (INRIA - Paris), 2019. ⋆ Roberto Alvarez-Boto (Sorbonne Universite), 2016. ⋆ Leo Allemand-Giorgis (INRIA - Grenoble), 2016. ⋆ Esma Elghoul (INRIA - Rocquencourt), 2014. ⋆ Maxime Belperin (LIRIS), 2013. ⋆ Rachid El Khoury (LIFL), 2013. ⋆ Bertrand Pellenard (INRIA), 2012. ⋆ Romain Arcila (LIRIS), 2011.
Fellowship Committee	⋆ Fulbright Franco-American Commission (US Department of State), 2011, 2016, 2020.
National conferences	⋆ Visu 2020 (co-organizer, virtual event). ⋆ Visu 2012 (co-organizer). ⋆ Visu 2011-2015 (program committee member). ⋆ Coresa 2012 (program committee member).
Funding agencies	⋆ Reviewer for: European Science Foundation, ANR, Institut Télécom.
National responsibilities	⋆ Co-head of the Visualization work-group ("GT Visu") of the CNRS GdR IGRV.

ACADEMIC ACTIVITIES

Current teaching activities (around 90 hours per year)

ENS Paris Saclay	⋆ Head instructor for the Topological Data Analysis course (30 hours/year) with Frédéric Chazal, MVA Master (2nd year).
	⋆ Head instructor for the Graphics and Visualization course (24 hours/year) with Marie-Paule Cani and Damien Rohmer, MPRI Master (2nd year).
ENSTA	⋆ Head instructor for the Visualization course (27 hours/year), Master 2 level.
Sorbonne PolyTech	⋆ Head instructor for the Visualization course (35 hours/year), Master 2 level.
Telecom ParisTech	⋆ Introductions to Topological Data Analysis (3 hours) and Scientific Visualization (3 hours).

Past teaching activities

2017	⋆ Winter school on Computational Geometry and Topology for Data Analysis, Nice, France (organizers: Jean-Daniel Boissonnat and Frédéric Chazal).
2014	⋆ ICS summer school on Scientific Visualization, Roscoff, France (organizer: Pascal Frey).
2013 – 2017	⋆ Head instructor for the Visualization course, Versailles University (UVSQ).
2008 – 2010	⋆ Teaching fellow at the Computer Science Department of the University of Utah.
2005 – 2008	⋆ Teaching assistant (*"Moniteur"*) at the Computer Science Department of Lille University.