

Pierre Bénard

Born 27/01/1985 in France.

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Project team [manao](#)

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Educational background

- 2008 - 2011 **Ph.D. in Computer Science**, Université de Grenoble, defended July 7, 2011
MSTII Doctoral School - Laboratoire Jean Kuntzmann - INRIA Grenoble Rhône-Alpes, France
Title: *Stylization of animations based on textures*
Advisers:
- François Sillion - Senior researcher at Inria
- Joëlle Thollot - Professor at Grenoble INP
Committee members:
- Marie-Paule Cani - Professor at Grenoble INP
- Bernard Péroche - Professor at Université Claude Bernard Lyon 1
- Aaron Hertzmann - Professor at Toronto University
- Adam Finkelstein - Professor at Princeton University
- 2007 - 2008 **M.S., Image, Vision and Robotics, with honors**
Université Joseph Fourier - GrenobleINP
Thesis: *Non-photorealistic rendering based on solid textures*
Advisers: Adrien Bousseau and Joëlle Thollot
- 2003 - 2008 BSc - M.S., Computer Science and Applied Mathematics, *with honors*
Ensimag (École nationale supérieure d'informatique et de mathématiques appliquées),
Grenoble INP, France

Professional experience

- Sep. 2013 - Présent **Associate Professor**, LaBRI - Inria, Université de Bordeaux, France
- *RIPEC C3 bonus since October 2022*
- April 2012 - August 2013 **Postdoctoral researcher**, Dynamic Graphics Project, University of Toronto, Canada
- Topic: *Robust occluding contour extraction from smooth surfaces*
- Collaborator: Aaron Hertzmann
- Sept. 2011 - Mars 2012 **Postdoctoral researcher**, Pixar Research Group, USA
- Topic: *Animations stylization by-example*
- Collaborators: Michael Kass, Kurt Fleisher and Forrester Cole
- Feb. - Jul. 2010 **Visiting Student Research Collaborator** (Explora'Doc program) Princeton University, USA
- Topic: *Temporally coherent stylization of animated line drawings*
- Collaborators: Adam Finkelstein, Forrester Cole and Jingwang Lu
- Sep. 2008 - June 2011 **Teaching assistant**, ENSIMAG - CPP Grenoble
- Summer 2007 **Research intern**, LEAR team, INRIA, Grenoble
- Topic: *Creation of ontologies for visual recognition using collaborative work sources*
- Advisers: Marcin Marszałek and Cordelia Schmid

Research activities

Funded projects

- 2021 - 2025 **MoStyle**, ANR JCJC, 270k€
- Topic: *Investigate how computer tools can help capturing and reproducing the typicality of traditional 2D animations*
 - Role: coordinator (38.4 m.m.)
- 2020 - 2024 **Structures**, ANR, 334k€, coordinator David Vanderhaeghe (IRIT)
- Topic: *Study hierarchical motion representations for stylized rendering*
 - Role: membre (4 m.m.)
- 2017 - 2021 **Fold-Dyn**, ANR, 536k€, coordinator Loïc Barthe (IRIT)
- Topic: *Explore the possibilities offered by a novel theoretical ways of addressing character deformations*
 - Role: member (19.2 m.m.)
- 2014 - 2017 **RichShape**, ANR JCJC, 198k€, coordinator Gaël Guennebaud (Inria Bordeaux Sud-Ouest)
- Topic: *Design novel representations for the creation, manipulation and efficient rendering of highly detailed 3D objects.*
 - Role: member (11 m.m.)

Supervised students

PhD. students

- 2022-2025 **Panagiotis Tsiakopolis**, Université de Bordeaux - Ubisoft
- Topic: *Study of artistic control in real-time expressive rendering*
- 2021-2024 **Melvin Even**, Université de Bordeaux
- Topic: *Computer-assisted rough 2D animation*
 - Co-advised with P. Barla
- 2017-2021 **Camille Brunel**, Université de Bordeaux
- Topic: *Time-independent geometrical deformation for elastic contacts*
 - Co-advised with P. Barla and G. Guennebaud
- 2014-2017 **Thibaud Lambert**, Université de Bordeaux
- Topic: *Level-Of-Details Rendering with Hardware Tessellation*
 - Co-advised with G. Guennebaud

2nd year Master students

- Février - Juil. 2021 **Melvin Entem**, ENSEIRB-MATMECA, co-advised with P. Barla
- Mars - Août 2019 **Baptiste Delos**, Université Toulouse III, co-advised with P. Barla
- Mars - Juil. 2018 **Timothe Barbaux**, Université de Bordeaux, co-advised with P. Barla
- Février - Juin 2017 **Claude Cugerone**, Université de Bordeaux, co-advised with P. Barla
- Février - Juin 2016 **Audrey Rameliarison**, Université de Bordeaux, co-advised with P. Barla
- Février - Juin 2014 **Maxime Solaire**, Université de Bordeaux, co-advised with P. Barla
- Avril 2012 - Juil. 2013 **Edy Garfinkiel**, University of Toronto, co-advised with A. Hertzmann
- Sep. 2012 - Juin 2013 **Nick Kim**, University of Toronto, co-advised with A. Hertzmann

1st year Master students

Mars - Août 2023	Bastien Morel , Université de Bordeaux, co-advised with P. Barla
Juin - Août 2020	Melvin Entem , ENSEIRB-MATMECA, co-advised with G. Guennebaud
Mai - Juil. 2017	Arnaud Delpeyroux , Université de Bordeaux, co-advised with G. Guennebaud

Publications

Journal articles

- P. Tsiapkolis and P. Bénard, “Patch Decomposition for Efficient Mesh Contours Extraction,” *Computer Graphics Forum*, vol. 43, no. 4, Jul. 2024. DOI: [10.1111/cgf.15154](https://doi.org/10.1111/cgf.15154), HAL: [hal-04620165](https://hal.archives-ouvertes.fr/hal-04620165).
- J. Chen, X. Zhu, M. Even, J. Basset, P. Bénard, and P. Barla, “Efficient Interpolation of Rough Line Drawings,” *Computer Graphics Forum*, vol. 42, no. 7, 2023. DOI: [10.1111/cgf.14946](https://doi.org/10.1111/cgf.14946), HAL: [hal04202841](https://hal.archives-ouvertes.fr/hal04202841).
- M. Even, P. Bénard, and P. Barla, “Non-linear Rough 2D Animation using Transient Embeddings,” *Computer Graphics Forum*, May 2023. DOI: [10.1111/cgf.14771](https://doi.org/10.1111/cgf.14771), HAL: [hal04006992](https://hal.archives-ouvertes.fr/hal04006992).
- C. Liu, P. Bénard, A. Hertzmann, and S. Hoshyari, “ConTesse: Accurate Occluding Contours for Subdivision Surfaces,” *ACM Transactions on Graphics*, vol. 42, no. 1, p. 16, Jan. 2023. DOI: [10.1145/3544778](https://doi.org/10.1145/3544778), HAL: [hal03699140](https://hal.archives-ouvertes.fr/hal03699140).
- C. Brunel, P. Bénard, and G. Guennebaud, “A Time-independent Deformer for Elastic Contacts,” *ACM Transactions on Graphics*, 2021. DOI: [10.1145/3450626.3459879](https://doi.org/10.1145/3450626.3459879), HAL: [hal-03227883](https://hal.archives-ouvertes.fr/hal-03227883).
- M. Garcia, R. Vergne, M.-A. Farhat, P. Bénard, C. Noûs, and J. Thollot, “Coherent Mark-based Stylization of 3D Scenes at the Compositing Stage,” *Computer Graphics Forum*, vol. 40, no. 2, 2021, HAL: [hal-03143244](https://hal.archives-ouvertes.fr/hal-03143244).
- C. Brunel, P. Bénard, G. Guennebaud, and P. Barla, “A Time-independent Deformer for Elastic-rigid Contacts,” *Proceedings of the ACM on Computer Graphics and Interactive Techniques*, vol. 3, no. 1, p. 21, 2020. DOI: [10.1145/3384539](https://doi.org/10.1145/3384539), HAL: [hal-02541299](https://hal.archives-ouvertes.fr/hal-02541299).
- P. Bénard and A. Hertzmann, “Line drawings from 3D models: a tutorial,” *Foundations and Trends in Computer Graphics and Vision*, vol. 11, no. 1-2, p. 159, 2019. DOI: [10.1561/06000000075](https://doi.org/10.1561/06000000075), HAL: [hal-02189483](https://hal.archives-ouvertes.fr/hal-02189483).
- T. Lambert, P. Bénard, and G. Guennebaud, “A View-Dependent Metric for Patch-Based LOD Generation & Selection,” *Proceedings of the ACM on Computer Graphics and Interactive Techniques*, vol. 1, no. 1, 2018. DOI: [10.1145/3203195](https://doi.org/10.1145/3203195), HAL: [hal-01779816](https://hal.archives-ouvertes.fr/hal-01779816).
- M. Dvorožňák, P. Bénard, P. Barla, O. Wang, and D. Sýkora, “Example-Based Expressive Animation of 2D Rigid Bodies,” *ACM Transactions on Graphics*, vol. 36, no. 4, p. 10, 2017. DOI: [10.1145/3072959.3073611](https://doi.org/10.1145/3072959.3073611), HAL: [hal-01514619](https://hal.archives-ouvertes.fr/hal-01514619).
- T. Lambert, P. Bénard, and G. Guennebaud, “Multi-Resolution Meshes for Feature-Aware Hardware Tessellation,” *Computer Graphics Forum*, 2016, HAL: [hal-01266179](https://hal.archives-ouvertes.fr/hal-01266179).
- P. Bénard, A. Hertzmann, and M. Kass, “Computing Smooth Surface Contours with Accurate Topology,” *ACM Transactions on Graphics*, vol. 33, no. 2, 2014. DOI: [10.1145/2558307](https://doi.org/10.1145/2558307), HAL: [hal-00924273](https://hal.archives-ouvertes.fr/hal-00924273).
- P. Bénard, F. Cole, M. Kass, *et al.*, “Stylizing Animation By Example,” *ACM Transactions on Graphics*, vol. 32, no. 4, 119:1–119:12, 2013. DOI: [10.1145/2461912.2461929](https://doi.org/10.1145/2461912.2461929), HAL: [hal-00816143](https://hal.archives-ouvertes.fr/hal-00816143).
- P. Bénard, A. Bousseau, and J. Thollot, “State-of-the-Art Report on Temporal Coherence for Stylized Animations,” *Computer Graphics Forum*, vol. 30, no. 8, pp. 2367–2386, 2011. DOI: [10.1111/j.1467-8659.2011.02075.x](https://doi.org/10.1111/j.1467-8659.2011.02075.x), HAL: [inria-00636210](https://hal.archives-ouvertes.fr/inria-00636210).
- P. Bénard, A. Lagae, P. Vangorp, S. Lefebvre, G. Drettakis, and J. Thollot, “A Dynamic Noise Primitive for Coherent Stylization,” *Computer Graphics Forum*, vol. 29, no. 4, pp. 1497–1506, 2010. DOI: [10.1111/j.1467-8659.2010.01747.x](https://doi.org/10.1111/j.1467-8659.2010.01747.x), HAL: [inria-00487986](https://hal.archives-ouvertes.fr/inria-00487986).

Conference papers

- J. Basset, P. Bénard, and P. Barla, “SMEAR: Stylized Motion Exaggeration with ART-direction,” in *SIGGRAPH 2024 - Conference & Exhibition on Computer Graphics & Interactive Techniques*, Denver, CO / Virtual, United States, Jul. 2024. DOI: [10.1145/3641519.3657457](https://doi.org/10.1145/3641519.3657457), HAL: [hal04576817](https://hal.archives-ouvertes.fr/hal04576817).

- S. E. Montesdeoca, H. S. Seah, A. Semmo, *et al.*, “MNPR: A Framework for Real-Time Expressive Non-Photorealistic Rendering of 3D Computer Graphics,” in *Expressive '18 - The Joint Symposium on Computational Aesthetics and Sketch Based Interfaces and Modeling and Non-Photorealistic Animation and Rendering*, 2018, p. 11. DOI: [10.1145/3229147.3229162](https://doi.org/10.1145/3229147.3229162), HAL: [hal-01814332](https://hal.archives-ouvertes.fr/hal-01814332).
- S. E. Montesdeoca, H. S. Seah, P. Bénard, *et al.*, “Edge- and substrate-based effects for watercolor stylization,” in *Expressive 2017, the Symposium on Computational Aesthetics, Sketch-Based Interfaces and Modeling, and Non-Photorealistic Animation and Rendering*, 2017, p. 10. DOI: [10.1145/3092919.3092928](https://doi.org/10.1145/3092919.3092928), HAL: [hal-01539599](https://hal.archives-ouvertes.fr/hal-01539599).
- P. Bénard, J. Lu, F. Cole, A. Finkelstein, and J. Thollot, “Active Strokes: Coherent Line Stylization for Animated 3D Models,” in *NPAR 2012 - 10th International Symposium on Non-photorealistic Animation and Rendering*, P. Asente and C. Grimm, Eds., ACM, 2012, pp. 37–46, HAL: [hal-00693453](https://hal.archives-ouvertes.fr/hal-00693453).
- P. Bénard, F. Cole, A. Golovinskiy, and A. Finkelstein, “Self-Similar Texture for Coherent Line Stylization,” in *NPAR 2010 - 8th International Symposium on Non-photorealistic Animation and Rendering*, ACM, 2010, pp. 91–97. DOI: [10.1145/1809939.1809950](https://doi.org/10.1145/1809939.1809950), HAL: [inria-00472673](https://hal.archives-ouvertes.fr/inria-00472673).
- P. Bénard, A. Bousseau, and J. Thollot, “Dynamic Solid Textures for Real-Time Coherent Stylization,” in *I3D 2009 - Symposium on Interactive 3D graphics and games*, ACM, 2009, pp. 121–127. DOI: [10.1145/1507149.1507169](https://doi.org/10.1145/1507149.1507169), HAL: [inria-00345835](https://hal.archives-ouvertes.fr/inria-00345835).
- P. Bénard, J. Thollot, and F. X. Sillion, “Quality Assessment of Fractalized NPR Textures: a Perceptual Objective Metric,” in *6th Symposium on Applied Perception in Graphics and Visualization (APGV)*, ACM, 2009, pp. 117–120. DOI: [10.1145/1620993.1621016](https://doi.org/10.1145/1620993.1621016), HAL: [inria-00405966](https://hal.archives-ouvertes.fr/inria-00405966).

Invited articles and talks

- M. Even, J. Basset, P. Bénard, and P. Barla, “Motion and Layout Depiction Using 2D/3D Animation Tools,” in *Vision and Depiction 2024*, Delft, Netherlands, Feb. 2024, HAL: [hal04617731](https://hal.archives-ouvertes.fr/hal04617731).
- J. Basset, P. Bénard, and P. Barla, “Interactive Art-Directable Smear Frame Stylization,” in *J.FIG 2023 - Journées Françaises de l'Informatique Graphique*, Montpellier, France, Nov. 2023, HAL: [hal04285524](https://hal.archives-ouvertes.fr/hal04285524).
- P. Bénard, S. E. Montesdeoca, H. S. Seah, *et al.*, “Rendu stylisé d'animations 3D : une approche centrée utilisateur,” in *Rencontres Animation Développement Innovation*, 2018, pp. 1–68, HAL: [hal-01985934](https://hal.archives-ouvertes.fr/hal-01985934).
- S. E. Montesdeoca, H. S. Seah, D. Benvenuti, *et al.*, “Direct 3D stylization pipelines,” in *ACM SIGGRAPH 2017 Real Time Live!*, 2017, p. 18. DOI: [10.1145/3098333.3098339](https://doi.org/10.1145/3098333.3098339), HAL: [hal-01574958](https://hal.archives-ouvertes.fr/hal-01574958).
- P. Bénard, “Temporally Coherent Stylization of 3D Animations,” in *FMX 2015*, Filmakademie Baden-Wuerttemberg, 2015, HAL: [hal-01150329](https://hal.archives-ouvertes.fr/hal-01150329).
- P. Bénard, J. Lu, F. Cole, A. Finkelstein, and J. Thollot, “Contours actifs pour la stylisation cohérente de lignes animées,” in *AFIG'10 - 23e journées de l'Association Française d'Informatique Graphique*, 2010, pp. 81–88, HAL: [inria-00628689](https://hal.archives-ouvertes.fr/inria-00628689).
- P. Bénard, A. Bousseau, and J. Thollot, “Textures volumiques auto-zoomables pour une stylisation temporellement cohérente en temps réel,” in *AFIG'08 - 21e journées de l'Association Française d'Informatique Graphique*, 2008, HAL: [inria-00345839](https://hal.archives-ouvertes.fr/inria-00345839).

Book sections

- P. Bénard, J. Thollot, and J. Collomosse, “Temporally Coherent Video Stylization,” in *Image and Video-based Artistic Stylisation*, Rosin, Paul, Collomosse, and John, Eds., vol. 42, Springer, 2012, pp. 257–284, HAL: [hal-00762944](https://hal.archives-ouvertes.fr/hal-00762944).

Thesis

- P. Bénard, “Stylisation temporellement cohérente d'animations 3D basée sur des textures,” Theses, Université de Grenoble, 2011, HAL: [tel-00630112](https://hal.archives-ouvertes.fr/tel-00630112).
- P. Bénard, “Rendu Non-Photoréaliste à base de Textures Volumiques,” M.S. thesis, UJF - ENSIMAG, 2008, p. 61, HAL: [inria-00598456](https://hal.archives-ouvertes.fr/inria-00598456).

Teaching activities

Computer Science M.S. Degree, Université de Bordeaux

Since 2016	<i>Advanced Image Synthesis</i> (lectures & practicals), M2 - 42h eq. TD
Since 2016	<i>3D Worlds</i> (lectures & practicals), M1 - 30h eq. TD
2019 - 2021	<i>Virtual and Augmented reality</i> (lectures & practicals), M2 - 18h eq. TD
2018 - 2019	<i>Advanced methods for Image processing</i> (lectures & practicals), M2 - 20h eq. TD
2016 - 2018	<i>Virtual and Augmented reality</i> (practicals), M2 - 24h eq. TD
2013 - 2015	<i>Realistic and Expressive Image Synthesis</i> (lectures & practicals), M2 - 48h eq. TD
2013 - 2015	<i>Virtual reality and 3D interactions</i> (practicals), M2 - 24h eq. TD
2013 - 2015	<i>GPU programming</i> (lectures & practicals), M2 - 38h eq. TD

Computer Science Bachelor Degree, Université de Bordeaux

Since 2020	<i>Software programming project</i> (lectures & practicals), L3 - 34h eq. TD
Since 2019	<i>Introduction to C Programming on Unix</i> (lectures & practicals), L1 - 36h eq. TD
2015 - 2020	<i>Technological projets</i> (practicals), L3 - 18h eq. TD
2014 - 2021	<i>Python programming</i> (practicals), L1 - 28h eq. TD
2013 - 2021	<i>Introduction to Computer Science</i> (lectures & practicals), L1 - 40h eq. TD

ENSEIRB-MATMECA - INP Bordeaux

2016 - 2018	<i>3D modeling and real-time rendering</i> (practicals), M2 - 11h eq. TD
2013 - 2015	<i>Image synthesis and geometric modeling</i> (practicals), M2 - 18h eq. TD]
2013 - 2015	<i>C++ programming</i> (practicals), M2 - 12,5h eq. TD

Professional activities

Program committees

2022	Co-organizer of the « Journées Française d'Informatique Graphique »
2017	Poster co-chair for the <i>Eurographics</i> conference
2013 & 2014	Paper co-chair for the NPAR track of the <i>Expressive</i> symposium

Reviewing activity

Journals	ACM Transactions on Graphics, IEEE Transactions on Visualization and Computer Graphics, Computer Graphics Forum, Computer & Graphics
Conferences	Siggraph, Siggraph Asia, EGSR, I3D, Pacific Graphics, Expressive, jFIG

PhD. committees

04/06/2019	Johanna Delanoy , Université Côte d'Azur
26/10/2018	Even Entem , Université Grenoble Alpes
18/12/2017	Thibaud Lambert , Université de Bordeaux

Local duties

- Since April 2021 Leader of the “Manioc” team of the “Image and Sound” department of LaBRI
- Since Sept. 2018 Head of the “Image and Sound” program of the Computer Science M.S. Degree
- Since May 2016 Member of the Scientific Council of LaBRI