

Samuel HORNUS
French Citizen
Born March 8, 1979 in Paris, France
Married, two young children

Address : 54000 NANCY
FRANCE
<https://members.loria.fr/samuel.hornus/>

Professional activities

Inria (French National Research Institute in Computer Science and Automation):

MFx team <https://mfx.loria.fr/>. **Researcher** Since 2018
2021–2024: Inria PEDR (bonus for excellent research)

Alice team <https://alice.loria.fr/>. **Researcher** 2010–2018
2017: Best paper award, second place, at the Symposium on Physical Modeling (SPM)

Alice team. **Post-doctoral researcher** 2009–2010
Visualisation, computer graphics and computational geometry. Adviser: Bruno LÉVY

Géométrica team <https://team.inria.fr/geometrica/>. **Post-doctoral researcher** 2007–2009
Computational geometry, software development in the CGAL library (Computational Geometry Algorithms Library). Adviser: Jean-Daniel BOISSONNAT

KAIST (Korean Advanced Institute for Science and Technology):

DCG Lab <https://dcglab.otfried.org/>. **Post-doctoral researcher** 2006–2007
Research in computational geometry. Adviser: professor Otfried CHEONG

Studies

2001–2006 **Université Joseph Fourier, Grenoble I - PhD in computer science:** *Maintaining the visibility of a moving viewpoint and applications*. Computer graphics and computational geometry.

2003–2006: **Teaching assistant** at Université Joseph Fourier, Grenoble.

1999–2003 **Public servant student** (Élève fonctionnaire stagiaire) at École Normale Supérieure de Cachan (ENS Cachan). 2000–2001 **ENS Cachan - Master degree in Algorithmic.** *Requêtes en logique temporelle (Temporal logic queries)* Formal software verification.

1999–2000 **ENS Cachan and Université Paris 7 - Bachelor in mathematics.**

Academic duties

For international conferences, including Eurographics, ACM SIGGRAPH and SIGGRAPH Asia, ACM Symposium on Computational Geometry (SoCG), ACM Symposium on Discrete Algorithms (SODA).

For international journals, including ACM Transaction on Graphics, Information Processing Letter, Journal of Computational Geometry, International Journal of Computer Mathematics.

Program committee member for Eurographics Short Papers ('18) and GRAPP ('21 & '22).

PhD committee guest. Vincent Vadez, June 2022. *Geometric simplification for satellites thermal simulation.*

Teaching

2021–2022 *École des Mines de Nancy*: TA for Algorithms & Complexity. Bachelor degree level.

2015–2020 *Télécom Nancy*: Mathematics for computer science. Bachelor degree level.

2010–2015 *Épitech Nancy*: Functional programming in OCaml. Bachelor degree level.

2002–2006 *Grenoble University*: Various introductory courses: CS basics for biology and physics students, programming basics (in C), TA for computer graphics course.

Hobbies

Out in the nature

All kind of books and scientific publications · Non-mainstream movies

Beginner harpsichordist · Listen to all kind of music · Opera

Publications of Samuel Hornus

The symbol ★ indicates the best journals or conferences. The symbol = indicates a similar contribution from the first two authors. The symbol α indicates that authors are sorted alphabetically. No α means that authors are sorted by decreasing contribution to the work.

The conference publications list excludes those that are also, or subsequently evolved into, journal publications. These are listed in the journal publications list.

International journal articles

- [1] **S H**, Tim Kuipers, Olivier Devillers, Monique Teillaud, Jonàs Martinéz, Marc Glisse, Sylvain Lazard, and Sylvain Lefebvre. Variable-width contouring for additive manufacturing. *ACM Transactions on Graphics (Proc. SIGGRAPH)*, 39(4), 2020. ★
- [2] Jimmy Étienne, Nicolas Ray, Daniele Panozzo, **S H**, Charlie Wang, Jonàs Martinéz, Sara McMaines, Marc Alexa, Brian Wyvill, and Sylvain Lefebvre. CurviSlicer: Slightly curved slicing for 3-axis printers. *ACM Transactions on Graphics (Proc. SIGGRAPH)*, 38(4), 2019. ★
- [3] Jonàs Martinéz, Mélina Skouras, Christian Schumacher, **S H**, Sylvain Lefebvre, and Bernhard Thomaszewski. Star-shaped metrics for mechanical metamaterial design. *ACM Transactions on Graphics (Proc. SIGGRAPH)*, 38(4), 2019. ★
- [4] Jonàs Martinéz, **S H**, Haichuan Song, and Sylvain Lefebvre. Polyhedral voronoi diagrams for additive manufacturing. *ACM Transactions on Graphics (Proc. SIGGRAPH)*, 37(4), 2018. ★
- [5] **S H**. Detecting the intersection of two convex shapes by searching on the 2-sphere. *Computer-Aided Design*, 90(Special Issue: Proc. SPM 2017 Symposium), 2017.
- [6] Jonàs Martinéz, **S H**, Frédéric Claux, and Sylvain Lefebvre. Chained segment offsetting for ray-based solid representations. *Computers & Graphics*, 46(Special issue: Proc. Shape Modeling International (SMI 2014)), 2015.
- [7] **S H**, Damien Larivière, Bruno Lévy, and Éric Fourmentin. Easy DNA modeling and more with GraphiteLifeExplorer. *PLOS One*, 8(1):e53609, 2013.
- [8] Ismael García, Sylvain Lefebvre, **S H**, and Anass Lasram. Coherent parallel hashing. *ACM Transactions on Graphics (Proc. SIGGRAPH Asia)*, 30(6):161, 2011. ★
- [9] Otfried Cheong, Hazel Everett, Marc Glisse, Joachim Gudmundsson, **S H**, Sylvain Lazard, Mira Lee, and Hyeon-Suk Na. Farthest-polygon Voronoi diagrams. *Computational Geometry: Theory and Applications*, 44(4):234–247, 2011. ★ α
- [10] Sylvain Lefebvre, **S H**, and Anass Lasram. By-example synthesis of architectural textures. *ACM Transactions on Graphics (Proc. SIGGRAPH)*, 29(3):84, 2010. ★ =
- [11] Olivier Devillers, Vida Dujmović, Hazel Everett, **S H**, Sue Whitesides, and Stephen Wismath. Maintaining visibility information of planar point sets with a moving viewpoint. *International Journal of Computational Geometry & Applications*, 17(4):297–304, 2007. α
- [12] **S H**, Alexis Angelidis, and Marie-Paule Cani. Implicit modeling using subdivision-curves. *The Visual Computer*, 19(2-3):94–104, 2003.

Book chapter

- [13] Damien Larivière, Rodrigo Galindo-Murillo, Éric Fourmentin, **S H**, Bruno Lévy, Julie Papillon, Jean-François Ménétret, and Valérie Lamour. A user-friendly DNA modeling software for the interpretation of cryo-electron microscopy data. In Olivier Espéli, editor, *The Baterial Nucleoid*, volume 1624 of *Methods in Molecular Biology*, pages 193–210. Springer, August 2017.
- [14] Sylvain Lefebvre, **S H**, and Anass Lasram. Per-pixel lists for single pass A-buffer. In Wolfgang Engel, editor, *GPU Pro 5*, chapter 1, pages x–x+21. AK Peters, 2014.
- [15] Sylvain Lefebvre, **S H**, and Fabrice Neyret. Octree textures on the GPU. In Matt Pharr, editor, *GPU Gems 2 - Programming Techniques for High-Performance Graphics and General-Purpose Computation*, chapter 37, pages 595–613. Addison Wesley, 2005.

International conference with peer review

- [16] Marco Freire, **S H**, Salim Perchy, and Sylvain Lefebvre. Procedural bridges-and-pillars support generation. In *Eurographics Short Papers*. Eurographics Association, April 2022.
- [17] **S H** and Sylvain Lefebvre. Iterative carving for self-supporting 3d printed cavities. In *Eurographics Short Papers*. Eurographics Association, April 2018.
- [18] Jean-Daniel Boissonnat, Olivier Devillers, and **S H**. Incremental construction of the Delaunay triangulation and the Delaunay graph in medium dimension. In *Proceedings of the Annual ACM Symposium on Computational Geometry (SCG)*, pages 208–216, Aarhus, Denmark, 2009. ★ α
- [19] Otfried Cheong, Hazel Everett, Marc Glisse, Joachim Gudmundsson, **S H**, Sylvain Lazard, Mira Lee, and Hyeon-Suk Na. Farthest-polygon Voronoï diagrams. In *Proceedings of the Annual European Symposium on Algorithms (ESA)*, number 4698 in LNCS, pages 407–418. Springer, 2007. An improved version was later published in a journal [9]. ★ α
- [20] Sylvain Lefebvre, **S H**, and Fabrice Neyret. Texture sprites: Texture elements splatted on surfaces. In David P. Luebke and Hanspeter Pfister, editors, *Proceedings of the Annual ACM Symposium on Interactive 3D Graphics & Games (SI3D)*, pages 163–170. ACM, 2005.
- [21] **S H**, Jared Hoberock, Sylvain Lefebvre, and John C. Hart. ZP+: correct Z-pass stencil shadows. In David P. Luebke and Hanspeter Pfister, editors, *Proceedings of the Annual ACM Symposium on Interactive 3D Graphics & Games (SI3D)*, pages 195–202. ACM, 2005.
- [22] Sylvain Lefebvre, Fabrice Neyret, **S H**, and Joëlle Thollot. Mobinet: a pedagogic platform for computer science, maths and physics (how to make students love maths by programming video games). In *Proceedings of Eurographics - Education*. Eurographics, 2004. Grenoble.
- [23] **S H** and Philippe Schnoebelen. On solving temporal logic queries. In *Proceedings of the 9th International Conference on Algebraic Methodology and Software Technology (AMAST'02)*, volume 2422 of *Lecture Notes in Computer Science*, pages 163–177, 2002. α
- [24] Marie-Paule Cani and **S H**. Subdivision curve primitives: a new solution for interactive implicit modeling. In *Proceedings of IEEE Shape Modeling International (SMI)*, pages 82–88, Italy, 2001.

Other publications

- [25] **S H**, Sylvain Lefebvre, Jérémie Dumas, and Frédéric Claux. Tight printable enclosures for additive manufacturing. Technical Report 8712, Inria, 2015. Presented at the GraDiFab workshop in Lisbon, 2016.
- [26] **S H** and Damien Larivière. Graphite-MicroMégas: a tool for modeling DNA. Journée Visu, CEA Bruyère-le-Chatel, 2011. An extended version was published in a journal [7].
- [27] Dominique Attali, Marc Glisse, **S H**, Francis Lazarus, and Dmitriy Morozov. Persistence-sensitive simplification of functions on surfaces in linear time. In *Topology in Visualization Workshop*, 2009. Snowbird, Utah. α
- [28] Jared Hoberock, **S H**, and John C. Hart. On constructing and visualizing the topological structure of the visibility and radiance of architectural models. In *Topology in Visualization Workshop*, 2009. Snowbird, Utah.
- [29] **S H** and Jean-Daniel Boissonnat. Efficient construction of the delaunay triangulation in medium dimension. Technical Report 6743, Inria, 2008. Une version étendue de ce travail a été présentée à SCG [18].
- [30] **S H** and Maxime Wolff. Constructing the visibility complex of disjoint polytopes. Manuscrit, 2007.
- [31] **S H** and Claude Puech. 3D radial decomposition and their kinetic maintenance. DIMACS workshop on Algorithmic Issues in Modeling Motion, Rutgers University, 2003.
- [32] Sylvain Lefebvre and **S H**. Automatic cell-and-portal decomposition. Technical Report 4898, Inria, 2003.
- [33] **S H** and Claude Puech. A simple kinetic visibility polygon. In *18th European Workshop on Computational Geometry*, pages 27–30, 2002. Warsaw University.

Diploma reports

- [34] **S H**. *Maintenance de la visibilité d'un point de vue mobile, et applications*. PhD thesis, Université Joseph Fourier, Grenoble, 2006.
- [35] **S H**. Requêtes en logique temporelle. Master's thesis, ENS Cachan, Cachan, 2001.