Rémi Imbach

Curriculum Vitæ

Civil Status: born December 7, 1985 in Strasbourg, France. French citizen.

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1. Resume

Research Experience

Since Nov. 2014	**Postdoctoral Researcher**, INRIA (National Institute for Research in Computer Science and Control) Nancy - Grand Est *Certified numerical algorithms to compute the topology of projected curves and apparent contours of surfaces.* Advisors: G. Moroz and M. Pouget
2013 - 2014	**Research and teaching fellow**, Université de Strasbourg, ICube laboratory *Combining reparameterization and homotopy approach to solve point distance constraint problems.* Advisors: P. Mathis and P. Schreck Teaching: 180 hours
2010 - 2013	**PhD candidate**, Université de Strasbourg, ICube laboratory *Solving geometric constraints by leading an homotopy method by geometry* Advisor: P. Mathis; Supervisor: P. Schreck Teaching: 64 hours each year
Jan - June 2010	**Master's thesis**, Université de Strasbourg, ICube laboratory *Homotopy solving of geometric constraint solving problems* Advisors: P. Mathis and P. Schreck
Summer 2007	**Internship**, Université de Strasbourg, ICube laboratory *Extension of discrete tomography algorithms to two-colors convex* Supervisor: A. Daurat

Education

October 2013	**PhD** in Computer Sciences, Université de Strasbourg, France Committee members: D. Michelucci, B. Mourrain, M.Tajine, P. Serré.
June 2010	**Master's degree** in Computer Sciences, Université de Strasbourg Specialty: Computer Sciences and Imaging
September 2008	**Master's degree** in Mathematics, Université de Strasbourg Specialty: Discrete Mathematics

Software

2015 - 2016	`subdivision_solver`: a subdivision solver for systems of large dense polynomials Developper and main conceptor.

Teaching

2013 - 2014	Institute for Mathematics and Computer Sciences, Université de Strasbourg: 170h exercises sessions, 10h lectures Responsible for the course unit *algorithm and coding* for students in mathematics, physics and chemistry; 10h lectures in this course unit. Exercises session in graph theory, computers architecture, ...
2010 - 2014	Institute for Mathematics and Computer Sciences, Université de Strasbourg: $3 \times$ 64h exercises sessions in *theory of operating systems*, *computers architecture*, *graph theory*, *algorithms and coding*, ...

Referees

Dr. Guillaume Moroz and Dr. Marc Pouget
Junior researchers at INRIA Nancy-Grand Est
INRIA Nancy-Grand Est 615 rue du jardin botanique 54600 Villers lès Nancy
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Pr. Pascal Schreck
Full professor of Computers Sciences at Université de Strasbourg
ICube laboratory 300 bd Sébastien Brant 67400 Illkirch
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2. Publications

Most of my publications are available on my personal web page:
`http://www.loria.fr/~rimbach/`.

On the order of author's names In the community of computer graphics where [Imbach 11, Imbach 12, Mathis 12, Imbach 14, Imbach 16b] have been disseminated, the usage is to make appear the name of the main contributor in first position. In the community of computational geometry where [Imbach 16a, Imbach 15a, Imbach 15b] have been published, the usage is to make appear the names of the authors in their alphabetical order.

International journals

[Imbach 16a] Rémi Imbach, Guillaume Moroz, and Marc Pouget. A certified numerical algorithm for the topology of resultant and discriminant curves. *Journal of Symbolic Computation*, 2016.

[Imbach 16b] Rémi Imbach, Pascal Mathis & Pascal Schreck. *A Robust and Efficient Method for Solving Point Distance Problems by Homotopy*. Research Report RR-8705, INRIA, January 2016.

To appear in *MAthematical PRogramming* (MAPR).

International conferences, peer reviewed

[Imbach 15a] Rémi Imbach, Guillaume Moroz & Marc Pouget. *Numeric and Certified Isolation of the Singularities of the Projection of a Smooth Space Curve*. Proceedings of the 6th International Conferences on Mathematical Aspects of Computer and Information Sciences, MACIS'15, 2015.

[Imbach 14] Rémi Imbach, Pascal Schreck & Pascal Mathis. *Leading a continuation method by geometry for solving geometric constraints*. Computer-Aided Design, vol. 46, pages 138–147, 2014.

[Mathis 12] Pascal Mathis, Pascal Schreck & Rémi Imbach. *Decomposition of geometrical constraint systems with reparameterization*. Proceedings of the 27th Annual ACM Symposium on Applied Computing, pages 102–108. ACM, 2012.

[Imbach 11] Rémi Imbach, Pascal Mathis & Pascal Schreck. *Tracking method for reparametrized geometrical constraint systems*. Proceedings of the 13th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing, pages 31–38. IEEE, 2011.

Technical report

[Imbach 16c] Rémi Imbach. *A Subdivision Solver for Systems of Large Dense Polynomials*. Technical Report 476, INRIA Nancy, March 2016.

National conferences, non peer reviewed

[Imbach 15b] Rémi Imbach, Guillaume Moroz & Marc Pouget. *A Certified Numerical Approach to Describe the Topology of Projected Curves*. In Journées de l'Association Française d'Informatique Graphique, 2015.

[Imbach 12] Rémi Imbach, Pascal Mathis & Pascal Schreck. *Une approche par décomposition et reparamétrisation de systèmes de contraintes géométriques*. In Journées du Groupe de Travail en Modélisation Géométrique, 2012.

PhD Thesis

[Imbach 13] Rémi Imbach. *Résolution de contraintes géométriques en guidant une méthode homotopique par la géométrie*. PhD Thesis, Université de Strasbourg, 2013.

3. Selected communications

Seminars

Soon:	*Certified numerical tools for computing the topology of projected curves*.
September 2016	AriC seminar, Lyon, France

International conferences and workshops

June 2016	*Interval tools for computing the topology of projected curves*. SWIM 2016 (Summer Workshop on Interval Methods), Lyon, France
Novembre 2015	*Numeric and Certified Isolation of the Singularities of the Projection of a Smooth Space Curve*. MACIS 2015 (Sixth International Conference on Mathematical Aspects of Computer and Information Sciences), Berlin, Germany
Novembre 2013	*Leading a continuation method by geometry for solving geometric constraints*. GD/SPM 13 (Geometric and Physical Modeling), Denver, Colorado, USA
Septembre 2011	*Tracking method for reparametrized geometrical constraint systems*. SYNASC 11 (Symposium on Symbolic and Numeric Algorithms for Scientific Computing), Timisoara, Romania

National conferences and workshops

Novembre 2015	*A Certified Numerical Approach to Describe the Topology of Projected Curves*. Journées de l'Association Française d'Informatique Graphique 2015, Lyon, France
Octobre 2015	*Numeric certified algorithm for computing the topology of projections of real spatial curves*. Journées Informatique et Géométrie 2015, ESIEE Parie, Marne-la-Vallée, France
Mars 2012	*Une approche par décomposition et reparamétrisation de systèmes de contraintes géométriques*. Journées du Groupe de Travail en Modélisation Géométrique, Strasbourg, France