

Pascal FREY

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1. Degrees and education

- "Habilitation à diriger des recherches" in Mathematics, UPMC, Paris, 2002.
- PhD thesis in Computer Science & Applied Mathematics, Strasbourg, 1993.

2. Academic posts and positions

- Professor of Mathematics, UPMC, Paris, since 2003.
- Professor of Mathematics (associate), Universidad de Chile, Santiago, sept. 2007 - dec. 2009.
- Associate Professor of Mathematics, École Centrale de Paris, 2003-2013.
- Senior research scientist, INRIA Rocquencourt, 1996 - 2003.
- Visiting scholar, Rensselaer Polytechnic Institute, Troy, NY, USA, nov. 1993 - dec. 1995.

3. PhDs. and postdoctorates

- *PhD Thesis (year of graduation)*

Frédéric Alauzet (2003), Larvi Debiane (2004), Cécile Dobrzynski (2005), Yann Mauffrey (2008), Gilles Kluth (2008), Thi Thu Cuc Bui (2009), Alexandra Claisse (2009), Maya De Buhan (2010), Charles Dapogny (2013), Nicolas Kowalski (2013), Thi Thanh Mai Ta (2014), Guilhem Lepoutier (2014), Dena Kazerani (2016), Chiara Nardoni (2017), Florian Omnès (2018), Robin Guegen (2018)

- *Postdoctorates*

Nicolas Nemitz (2007), Simona B. Savescu (2013), Chantal Oberson-Ausoni (2013-2015), Jérémy Dalphin (2015, 2017), Titien Bartette (2017), Taraneh Sayadi (2017).

4. Scientific expert positions:

- Member of the Editorial Board of *Int. Journal for Numerical Methods in Engineering*, *Int. Journal for Numerical Methods in Fluids*, *Computational and Applied Mathematics*,
- Referee for > 30 journals in applied mathematics, scientific computing, computer science, computational physics, computational mechanics (CMAME, CMBBE, C.R. Acad. Sciences, Computational Geosciences, Computer Physics Communications, Computers and Fluids, Computers and Structures, Engineering with Computers, Eurographics, ESAIM Proc., Finite Elements in Analysis and Design, IEEE Trans. Visualization and Comp. Graphics, Int. J. Numer. Methods in Engng., Int. J. Numer. Methods in Fluids, Int. J. Numer. Methods in Biomedical Engineering, JCAM, J. Comput. Physics, Journal of Theoretical Biology, JZUS, M2AN, Mathematical and Computer Modelling, Mathematics and Computers in Simulation, SIAM Journal on Scientific Computing, Solid Modelling, Transactions on Graphics, TSI, etc.),
- Member of program committees of several conferences, workshops and summer schools,
- Member of hiring committees (professors, research engineers),
- Member of steering committees (Genci, Carnot Smiles),
- Scientific advisor (CEA-Cesta, Inria team-project Cardamom),
- Founder and director of the [Institut des sciences du calcul et des données](#)(UPMC), since 2010,
- Member of scientific societies: SMAI (société de mathématiques appliquées et industrielles), AFM (association française de mécanique)

5. Grants and awards

- PI/coordinator of the FEDER project (2015) "ICS@SU"
- PI/coordinator of the structuring grant "ICS@SU", Idex SUPER, (2015),
- PI/coordinator of the Chair FaciLe (2014), Idex SUPER, on facial reconstruction for forensics,
- PI/coordinator of the project *laboratoire d'excellence* (Labex 2012) "CalSimLab", to sustain research in computational and quantum chemistry and in computational biology, involving nine laboratories at UPMC,
- PI in the project *équipement d'avenir* (Equipex 2011) "Equip@meso", led by GENCI (Grand Equipement National en Calcul Intensif), which aims at reinforcing academic computer facilities at the mesoscale level,
- PI of the FUI (Pôles de compétitivité, 2011) Rodin: Recherches en Optimisation topologique et géométrie du Design pour l'INDustrie,
- PI in the ANR: Vivabrain (méthodes numériques 2012): simulation d'angiographies virtuelles à partir de modèles vasculaires 3d et 3d+, FF2A3 (méthodes numériques ANR-07-CIS7-002-01): FreeFem++ de la dimension deux à la dimension trois,
- PI/coordinator of the grant Ile de France SESAME (Refics 2011),
- PI in the project CNRS-STIC AmSud (2008-2009) PLOMO: mutual software platform for the elaboration of soft tissue physical models,
- BQR UPMC (2006): apports des techniques numériques à la synthèse d'images,
- PI in the European project (2001-2003) MagicFEAT: méthodes adaptatives pour les semiconducteurs,
- PI/coordinator in the ARC (Action de Recherche Collaborative) INRIA: LNM: combiner techniques d'adaptation de maillages et méthodes de lignes de niveaux, 3DMeg: méthodes numériques pour signaux MEG, Costic: approximation des courbes et surfaces implicites, VitesV: discrétisation des surfaces et surfaces discrètes.
- Best Technical Paper Award, 21th Int. Meshing Roundtable (2012), Meshing Maestro, 8th Int. Meshing Roundtable (1999), Young Investigator Award, Hyperthermic Oncology Soc. (1992), Research grant INRIA (1994), Biomedical research grants: Ligue Nationale contre le Cancer (1989-1991) and ARC (1992).

6. Research topics and research results

- Research activity

My research activity encompasses the design and the analysis of mathematical methods involved in numerical simulations based on finite elements or finite volumes methods. Computational fluid mechanics and structural mechanics as well as biomedical engineering are the main areas of application of these methods. Since the last two decades, I have been dealing with mesh generation and adaptation, the analysis of error estimates, the formalization of level-set techniques for interface tracking-capturing purposes and with topological and geometrical shape optimization, as well as surface reconstruction from sampled data.

- Research results

My research results have been published in journals of theoretical or computational applied mathematics, applied physics, scientific computing, biomedical engineering, computational fluid ou structural mechanics, applied geometry. Most have led to the development of software codes that are distributed under the open access license; some have been integrated into commercial software packages (Fluent, for instance) or open access codes (FreeFem++, Gmsh, [ISCD toolbox](#)).

- I have co-authored 110 papers and research notes in international peer-reviewed journals and 10 books or chapters in monographies. H-index: 27, 3428 citations (1587 since 2011) ([Google scholar](#))

7. Communications and seminars

- Communications at international conferences

1990, 10th Oncology Forum, Paris

1991, COMAC-BME Workshop on Hyperthermia Treatment Planning, Lisbon (Portugal)

1992, 15th International Congress on Clinical Hyperthermia, Lyon

1992, International Congress on Hyperthermic Oncology, Tucson (USA)

1993, Computer Assisted Radiology, Berlin (Germany)

1993, European Conference On Engineering and Medicine, Stuttgart (Germany)

1994, ICCA meeting, Troy, NY (USA)

1996, International Meshing Roundtable, Pittsburgh, PA (USA)

1997, NAFEMS World congress, Stuttgart (Germany)

1997, McNU'97, ASME/ASCE/SES Mechanics Conference, Northwestern University, Evanston, IL (USA)

1997, International Meshing Roundtable, Park City, UT (USA)
 1998, Int. Conf. on Numerical Grid Generation in Computational Field Simulations, Greenwich (UK)
 1998, International Meshing Roundtable, Dearborn, MI (USA)
 2000, International Meshing Roundtable, New Orleans, LO (USA)
 2001, Computational Fluid Dynamics, Swansea (UK)
 2001, MIT Conference, Cambridge, MA (USA)
 2001, Symposium on Trends in Unstructured Mesh Generation, Dearborn, MI (USA)
 2002, Curves and Surface fitting, Saint Malo
 2002, AIAA-2002-0592 Conference, Reno, NE (USA)
 2002, World Congress on Computational Mechanics, Vienna (Austria)
 2003, MIT Conference, Cambridge, MA (USA)
 2003, International Meshing Roundtable, Santa Fe, NM (USA)
 2003, Int. Conf. on Curves and Surfaces, Saint Malo
 2004, ECCOMAS, Jyväskylä (Finland)
 2004, Tetrahedron IV, Verbania (Italy)
 2005, Pacific RIM Conference, Shanghai (China)
 2005, International Meshing Roundtable, San Diego, CA (USA)
 2005, Conference on Finite Elements for Flow Problems, Swansea (UK)
 2006, Workshop on Computer Assisted Diagnosis and Surgery, Santiago (Chile)
 2007, Valparaiso Numerico, Valparaiso (Chile)
 2008, International Meshing Roundtable, Pittsburgh, PA (USA)
 2010, ICAMI, San Andres Island (Columbia)
 2011, Acomen, Advanced Computational Methods in Engineering, Liège (Belgium)
 2012, International Meshing Roundtable, Pittsburgh, PA (USA)
 2015, Discussion meeting on Maximum Probability Domains, IHP, Paris
 2016, Analysis, Probability, and their Applications. Qui Nhon (Vietnam)

- Conferences, Workshops and Seminars

1991, Université de Strasbourg
 1994, Rensselaer Polytechnic Institute (Troy, NY)
 1995, Inria (Rocquencourt)
 2000, CIRM (Luminy)
 2001, ENST (Paris), CIRM (Luminy)
 2002, CINES (Montpellier), MOX Politecnico di Milano (Italy), Université Paris 6, Inria (Sophia Antipolis), INSA (Lyon),
 2003, Université Paris 6, Sandia National Laboratory, Livermore, (USA), Inria Sophia Antipolis, Université de Strasbourg
 2004, Académie des Sciences (Beijing), Université d'Orsay
 2005, Université de Metz, Sandia National Laboratory, Livermore, (USA)
 2006, Universidad de Chile, Santiago (Chile), Université Paris 6
 2007, Collège de France (Paris), Universidad de Chile, Santiago
 2009, Universidad de Concepcion (Chile), LNCC, Petropolis (Brasil)
 2010, Université Paris 6, Universidad EAFIT, Medellin (Colombia), Institut Henri Poincaré IHP (Paris)
 2011, Institut Henri Poincaré IHP (Paris), Université de Franche Comté (Besançon)
 2013, Université de Picardie Jules Verne (Amiens), Université de Nancy
 2014, Université Paris 6
 2015, Lycée Louis Thuillier (Amiens), Cesta-CEA (Bordeaux), Université de Lille
 2016, Université des Sciences et Technologies, Hanoi (Vietnam), Université Paris Sorbonne (Paris)
 2017, Res#2, CNAM (Paris), Cesta-CEA (Bordeaux), Transnum (IMI, Paris), Deep Learning et acclration GPU (UPMC, Paris)

8. List of publications

1. Books, chapters in books

- [1] H. Borouchaki, D. Chapelle, P.L. George, P. Laug, and P. Frey. Estimateurs d'erreur géométriques et adaptation de maillage. In P.L. George, editor, *Maillages et Adaptation. Traité Mécanique et Ingénierie des Matériaux, Méthodes Numériques*. Hermès Science, Paris, Oxford, 2001.
- [2] P. Frey. Arbres et mailles. In P.L. George, editor, *Maillage et adaptation. Traité Mécanique et Ingénierie des Matériaux, Méthodes Numériques*. Hermès Science, Paris, Oxford, 2001.
- [3] P. Frey and P.L. George. Mesh generation and related topics. application to finite elements. In F. Dubois, editor, *New Advances in Computational Fluid Dynamics - Theory, Methods and Applications*, pages 1–68. Higher Education Press, 2001.
- [4] P.L. George, H. Borouchaki, P. Frey, P. Laug, and E. Saltel. Mesh generation and mesh adaptivity : theory, techniques. In R. de Borst E. Stein and T.J.R. Hughes, editors, *Encyclopedia of computational mechanics*. Higher Education Press, John Wiley & Sons, 2004.
- [5] P. Frey. A differential geometry approach to mesh generation. In P.G. Ciarlet and T. Li, editors, *Differential Geometry: theory and applications*, volume 9 of *Series in Contemporary Applied Mathematics*. World Scientific, 2008.
- [6] Ch. Oberson Ausoni and P. Frey. *Topological and statistical methods for complex data*, chapter Geometric algebra for vector field analysis and visualization: mathematical settings, overview and applications, pages 183–203. Springer, 2015.
- [7] P. Frey and P.L. George. *Le maillage facile*. Hermès Science, Paris, Oxford, 2003.
- [8] P. Frey and P.L. George. *Maillages : applications aux éléments finis*. Hermès Science, Paris, 1999.
- [9] P. Frey and P.L. George. *Mesh generation. Application to finite elements*. Hermès Science, Paris, Oxford, 2000.
- [10] P. Frey and P.L. George. *Mesh generation. Application to finite elements*. Wiley, 2nd edition, 2008.

The book on mesh generation [10] (850 pages) is usually acknowledged as a reference for mesh generation and mesh adaptation methods in scientific computation.

2. Referred papers

- [11] P. Frey and M. Gautherie. Fully automatic mesh generation in a set of voxels. *ITBM*, 12:428–442, 1991.
- [12] P. Frey and et al. Numerical processing of 3D MRI data prior to thermal modelling and clinical treatment planning. *Ultrasonics*, 30:137–138, 1992.
- [13] P. Frey, T. Sublon, and M. Gautherie. 3D characterization of ultrasonic fields for hyperthermia treatments. *Ultrasonics*, 30:121–123, 1992.
- [14] M. Gautherie and P. Frey. Toward clinical planning of ultrasound hyperthermia. *Ultrasonics*, 30:135–137, 1992.
- [15] P. Frey, B. Sarter, and M. Gautherie. Fully automatic mesh generation for 3D domains based upon voxel sets. *Int. j. numer. meth. eng.*, 37:2735–2753, 1994.
- [16] P. Frey and H. Borouchaki. Finite element meshes by means of voxels. *Lecture Note in Computer Science, DGCI*, 1176:115–125, 1996.
- [17] H. Borouchaki, P. Frey, and P.L. George. Maillage de surfaces paramétriques. partie III: Eléments quadrangulaires. *C.R. Acad. Sci., Paris, Série I*, t. 325:551–556, 1997.
- [18] P. Frey and H. Borouchaki. Geometric evaluation of finite element surface meshes. *Finite Element in Analysis and Design*, 31:33–53, 1997.
- [19] P. Frey and H. Borouchaki. Qualité des maillages de surfaces. *C.R. Acad. Sci., Paris, Série I*, t. 325:925–930, 1997.
- [20] P. Frey and H. Borouchaki. Triangulation des surfaces implicites. *C.R. Acad. Sci., Paris, Série I*, t. 325:101–106, 1997.
- [21] H. Borouchaki and P. Frey. Adaptive triangular-quadrilateral mesh generation. *Int. j. numer. methods eng.*, 41:915–934, 1998.
- [22] H. Borouchaki, F. Hecht, and P. Frey. Mesh gradation control. *Int. j. numer. methods eng.*, 43(6):1143–1165, 1998.
- [23] P. Frey and H. Borouchaki. Geometric evaluation of finite element surface meshes. *Finite Elements in Analysis and Design*, 31:33–53, 1998.
- [24] P. Frey and H. Borouchaki. Geometric surface mesh optimization. *Computing and Visualization in Science*, 1:113–121, 1998.
- [25] P. Frey, H. Borouchaki, and P.L. George. 3D Delaunay mesh generation coupled with an advancing-front approach. *Comp. Meth. in Appl. Mech. and Engng.*, 157(1-2):115–131, 1998.
- [26] P.P. Pébay and P. Frey. Delaunay-admissibilité des triangulations de surfaces. *C.R. Acad. Sci., Paris, Série I*, t. 327:313–318, 1998.
- [27] H. Borouchaki and P. Frey. Maillage géométrique des surfaces. *Revue Européenne des Eléments Finis*, 8:47–75, 1999.

- [28] P. Frey and H. Borouchaki. Surface mesh quality evaluation. *Int. j. numer. methods eng.*, 45:101–118, 1999.
- [29] F. Alauzet, P. Frey, and B. Mohammadi. Adaptation de maillages pour des problèmes instationnaires. *C.R. Acad. Sci., Paris, Série I*, 336:773–778, 2002.
- [30] P. Frey and H. Borouchaki. Simplification des cartes géographiques par minimisation de la déformation locale. *C.R. Acad. Sci., Paris, Série I*, 334:227–232, 2002.
- [31] F. Alauzet, P.L. George, B. Mohammadi, P.J. Frey, and H. Borouchaki. Transient fixed point based unstructured mesh adaptation. *Int. j. numer. methods fluids*, 43(6-7):729–745, 2003.
- [32] P. Frey and H. Borouchaki. Surface meshing using a geometric error estimate. *Int. j. numer. methods eng.*, 58(2):227–245, 2003.
- [33] J.D. Boissonnat, R. Chaine, P. Frey, G. Malandain, G. Salmon, E. Saltel, and M. Thiriet. From arteriographies to computational flow in saccular aneurysms: the inria experience. *MedIA*, 2004.
- [34] P. Frey. Generation and adaptation of computational surface meshes from discrete anatomical data. *Int. j. numer. methods eng.*, 60:1049–1074, 2004.
- [35] H. Borouchaki and P. Frey. Simplification of surface mesh using Hausdorff envelope. *Comp. Meth. in Appl. Mech. and Engng.*, 194(48-49):4864–4884, 2005.
- [36] P. Frey and F. Alauzet. Anisotropic mesh adaptation for CFD computations. *Comp. Meth. in Appl. Mech. and Engng.*, 194(48-49):5068–5082, 2005.
- [37] J.F. Gerbeau, M. Vidrascu, and P. Frey. Fluid-structure interaction in blood flows on geometries coming from medical imaging. *Computers and Structures*, 83(2-3):155–165, 2005.
- [38] C. Dobrzynski, P. Frey, B. Mohammadi, and O. Pironneau. Fast and accurate simulations of air-cooled structures. *Comp. Meth. in Appl. Mech. and Engng.*, 195(23-24):3168–3180, 2006.
- [39] F. Alauzet, P. Frey, P.L. George, and B. Mohammadi. 3D transient fixed point mesh adaptation for time-dependent problems: Application to cfd simulations. *J. Comp. Phys.*, 222:592–623, 2007.
- [40] C. Dobrzynski, P. Frey, and O. Pironneau. Couplage et adaptation de maillage anisotrope pour des simulations de flux d’air dans des géométries complexes. *REEF*, 16(6-7):749–773, 2007.
- [41] V. Ducrot and P. Frey. Contrôle de l’approximation géométrique d’une interface par une métrique anisotrope. *C.R. Acad. Sci., Paris, Série I*, 345:537–542, 2007.
- [42] C. Bui, P. Frey, and B. Maury. Méthode du second membre modifié pour la gestion de rapports de viscosité importants dans le problème de Stokes bifluide. *C.R. Acad. Sci., Paris, Série I*, 336:524–529, 2008.
- [43] A. Claisse, V. Ducrot, and P. Frey. Levelset and mesh adaptation. *DCDS-A*, 23(1-2):165–183, 2008.
- [44] A. Claisse and P. Frey. Construction d’une courbe régulière d’approximation d’un ensemble de points. *C.R. Acad. Sci., Paris, Série I*, 346:1017–1022, 2008.
- [45] A. Claisse and P. Frey. Level set driven smooth curve approximation from unorganized or noisy point set. *ESAIM Proc.*, 27:254–271, 2009.
- [46] C. Bui, P. Frey, and B. Maury. A coupling strategy based on anisotropic mesh adaptation for solving two-fluid flows. *Int. j. numer. methods fluids*, 66(10):1226–1247, 2010.
- [47] G. Allaire, Ch. Dapogny, and P. Frey. Topology and geometry optimization of elastic structures by exact deformation of simplicial mesh. *C.R. Acad. Sci., Paris, Série I*, 349(17-18):999–1003, 2011.
- [48] A. Claisse and P. Frey. A nonlinear PDE model for reconstructing a regular surface from sampled data using a level set formulation on triangular meshes. *J. Comp. Phys.*, 230(12):4636–4656, 2011.
- [49] M. de Buhan and P. Frey. A generalized model of nonlinear viscoelasticity: numerical issues and applications. *Int. J. Numer. Methods Engng.*, 86(13):1544–1557, 2011.
- [50] C. Bui, Ch. Dapogny, and P. Frey. An accurate anisotropic adaptation method for solving the level set advection equation. *Int. j. numer. methods fluids*, 70(7):899–922, 2012.
- [51] Ch. Dapogny and P. Frey. Computation of the signed distance function to a discrete contour on adapted triangulation. *Calcolo*, 49(3):193–219, 2012.
- [52] G. Allaire, Ch. Dapogny, and P. Frey. A mesh evolution algorithm based on the level set method for geometry and topology optimization. *Structural and Multidisciplinary Optimization*, 48(4):711–715, 2013.
- [53] G. Allaire, Ch. Dapogny, and P. Frey. Shape optimization with a level set based mesh evolution method. *Comput. Methods Appl. Mech. Engng.*, 282:22–53, 2014.
- [54] Ch. Dapogny, C. Dobrzynski, and P. Frey. Three-dimensional adaptive domain remeshing, implicit domain meshing, and applications to free and moving boundary problems. *JCP*, 262:358–378, 2014.
- [55] N. Kowalski, F. Ledoux, and P. Frey. Automatic domain partitioning for quadrilateral meshing with line constraints. *Engineering with Computers*, 31(3):405–421, 2015.

- [56] F. Marin, K. Ben Mansour, F. Demeter, and P. Frey. Displacement of facial soft tissue in upright versus supine position. *Computer Methods in Biomechanics and Biomedical Engineering*, 2015.
- [57] M. de Buhan, C. Dapogny, P. Frey, and C. Nardoni. An optimization method for elastic shape matching. *C.R. Acad. Sci., Paris, Série I*, 354(8):783–787, 2016.
- [58] P. Frey, D. Kazerani, and T.T.M. Ta. An adaptive numerical scheme for solving incompressible two-phase and free-surface flows. *Int. j. numer. methods fluids*, submitted, 2016.
- [59] N. Kowalski, F. Ledoux, and P. Frey. Smoothness driven frame field generation for hexahedral meshing. *Computer-Aided Design*, 72:65–77, 2016.

3. Conference proceedings

- [60] E. Engler and P. Frey et al. Automatic image processing of mr images using a neural network. In *10th Oncology Forum*, Paris, 1990.
- [61] E. Engler and P. Frey et al. MR imaging of brain tumors: automatic segmentation using a neural network. In *12th Cong. of the French Neuroradiology Soc.*, Strasbourg, 1990.
- [62] P. Frey and M. Gautherie. Thermal simulations in thermotherapy: methodological approaches. In *Congress on biomathematics and computer science*, Paris, 1990. INSERM.
- [63] P. Frey. 3D data processing and numerical methods of modelling for clinical hyperthermia treatment planning. In *15th Int. Congr. Clinical Hyperthermia*, Lyon, 1992.
- [64] P. Frey. 3D numerical data processing prior to thermal modeling and clinical planning of ultrasound hyperthermia of brain tumors. In *14th Int. Conf. Engng. in Medicine and Biology Society*, Paris, 1992.
- [65] P. Frey. Numerical processing of 3D MRI data prior to thermal modeling and treatment planning of ultrasound hyperthermia of brain tumors. In *6th Int. Congr. Hyperthermic Oncology*, Tucson, AZ, USA, 1992.
- [66] P. Frey and al. Treatment planning in hyperthermia of brain tumors: numerical MRI data processing prior to thermal and acoustic modelling. In *12th Oncology Forum*, Paris, 1992.
- [67] P. Frey and et al. 3D data segmentation and mesh generation of pathological brain tissue based on 3D MRI data in view of acoustic and thermal modelling. In *Computer Assisted Radiology*, Berlin, Germany, 1993.
- [68] P. Frey and et al. Automatic 3D mesh generator based upon MRI voxel data for 3D numerical acoustic and thermal modeling using the finite element method. In *2nd European Conf. on Engineering and medicine*, Stuttgart, Germany, 1993.
- [69] B. Sarter, P. Frey, and M. Gautherie. Numerical processing of 3D MRI data prior to acoustic and thermal modelling. In *2nd European Conf. on Engineering and medicine*, Stuttgart, Germany, 1993.
- [70] H. Borouchaki and P. Frey. Tétraédrisation de Delaunay basée sur une approche frontale. In *Strucome' 96*, Paris, 1996.
- [71] H. Borouchaki, P. Frey, and P.L. George. Unstructured triangular-quadrilateral mesh generation. application to surface meshing. In *5th Int. Meshing Roundtable*, pages 229–242, Pittsburgh, PA, USA, 1996. Sandia.
- [72] P. Frey, H. Borouchaki, and P.L. George. Delaunay tetrahedralization using an advancing-front approach. In *5th Int. Meshing Roundtable*, pages 31–43, Pittsburgh, PA, USA, 1996. Sandia.
- [73] H. Borouchaki and P. Frey. Adaptive triangular-quadrilateral mesh generation. In *Nafems world congress'97*, pages 1105–1118, Stuttgart, Germany, 1997.
- [74] H. Borouchaki and P. Frey. Optimization tools for adaptive surface meshing. In *McNu'97 ASME/ASCE/SES Mechanics Conference*, Northwestern University, IL, USA, 1997.
- [75] H. Borouchaki, F. Hecht, and P. Frey. Mesh gradation control. In *6th Int. Meshing Roundtable*, Park City, UT, USA, 1997. Sandia.
- [76] P. Frey and H. Borouchaki. Surface mesh evaluation. In *6th Int. Meshing Roundtable*, ParkCity, UT, USA, 1997. Sandia.
- [77] P. Frey and H. Borouchaki. Unit surface mesh simplification. In *McNu'97*, Northwestern University, IL, USA, 1997.
- [78] P. Frey, H. Borouchaki, F. Hecht, and E. Saltel. Adaptive surface mesh optimization. In *6th Int. Conf. on Numerical Grid Generation in Computational Field Simulations*, Greenwich, UK, 1998.
- [79] P. Frey and L. Maréchal. Fast adaptive quadtree mesh generation. In *7th Int. Meshing Roundtable*, Dearborn, MI, USA, 1998. Sandia.
- [80] P.P. Pébay and P. Frey. *a priori* Delaunay conformity. In *7th Int. Meshing Roundtable*, Dearborn, MI, USA, 1998. Sandia.
- [81] M. Thiriet and et al. Computational models of flow in cerebral aneurysms. In *11th Conf. of the ESB*, Toulouse, 1998.
- [82] Borouchaki, P. Frey, P.L. George, P. Laug, and É. Saltel. Mailleur autoadaptatif de surfaces et de volumes. In *Journées Cetim*, Senlis, 1999.
- [83] P. Frey. About surface remeshing. In *9th Int. Meshing Roundtable*, New Orleans, LA, USA, 2000. Sandia.
- [84] P. Frey. Efficient decimation of large-size surface meshes. In *Scanning'2000*, Paris, 2000.

- [85] F. Alauzet, P.L. George, B. Mohammadi, P.J. Frey, and H. Borouchaki. Transient fixed point based unstructured mesh adaptation. In *Computational Fluid Dynamics*, Swansea, UK, 2001.
- [86] P. Frey. Anisotropic surface remeshing. In *1st MIT Conference*, Cambridge, MA, USA, 2001.
- [87] P. Frey and H. Borouchaki. Surface meshing using a geometric error estimate. In *3rd Symposium on Trends in Unstructured Mesh Generation*, Dearborn, IL, USA, 2001.
- [88] F. Alauzet and et al. 3D adaptive control and shape design platform for unstructured meshes. In *AIAA-2002-0592*, Reno, NE, USA, 2002.
- [89] F. Alauzet, P. Frey, P.L. George, and B. Mohammadi. Unstructured mesh adaptation for transient CFD problems. In *5th World Congress on Computational Mechanics*, Vienna, Austria, 2002.
- [90] P. Frey. Mesh adaptation in biomedical applications. In *MS4CMS'02*, Paris, 2002.
- [91] P.L. George, P. Frey, and F. Alauzet. Automatic generation of 3D adapted meshes. In *5th World Congress on Computational Mechanics*, Vienna, Austria, 2002.
- [92] F. Alauzet and P. Frey. Anisotropic mesh adaptation. applications to transient CFD problems. In *2nd MIT Conference*, Cambridge, MA, USA, 2003.
- [93] F. Alauzet, P. Frey, and B. Mohammadi. Adaptation de maillages non structurés pour les problèmes instationnaires en trois dimensions. In *CANUM*, La Grande Motte, 2003.
- [94] P. Frey. Medit: a multiplatform visualisation tool. In *2nd MIT Conference*, Cambridge, MA, USA, 2003.
- [95] P. Frey and F. Alauzet. Anisotropic mesh adaptation for transient cfd problems. In *12th Int. Meshing Roundtable*, Santa Fe, NM, USA, 2003. Sandia.
- [96] P. Frey and H. Borouchaki. Simplification of terrains by minimization of the local deformation. In L. Schumaker, editor, *5th Int. Conf. on Curves and Surfaces*, Saint Malo, 2003. Nashboro Press.
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