Curriculum Vitae
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Contents

1 Scientific Interests **2**

2 Positions and Degrees **2**

3 Teaching Experience **3**

4 Research collaborators and Students **4**

5 Research Projects **5**

6 Professional Service and Honors (selected) **7**

7 Invited Talks (selected) **9**

8 Personal Information **9**

9 Publications **10**

October 5, 2017

1 Scientific Interests

Computer algebra and Scientific computing, Computational geometry and Geometric computing, CAD and Geometric modeling, Data science and Optimization, Bioinformatics and Robotics.

2 Positions and Degrees

Spring 2017	Sabbatical leave. Visiting Researcher: ETH Zürich; Univ. Svizzera Italiana, Lugano; INRIA Sophia-Antipolis.
Since 2012	Adjunct researcher, Institute for Management of Information Systems, ATHENA Research and Innovation Center, Maroussi, Greece.
Since Sep. 2002	Professor (since Aug. 2007), and Associate Professor of "Algebraic and Geometric Algorithms". Dept Informatics & Telecoms, NKUA, Greece.
Since Oct. 1995	Researcher, Tenured (Mar. 1997), On leave (Sep. 2002). Institut National de Recherche en Informatique et en Automatique, Sophia-Antipolis, France.
2009	Sabbatical leave. Visiting Researcher: Ecole Normale Supérieure de Paris, Ecole Centrale de Paris, INRIA Paris, Institut des Hautes Etudes Scientifiques, Université d'Evry, Université Paris-Dauphine / CNRS.
July - Aug. 2002	Visiting Researcher: Computer Science Dept. / ORCCA, Western U., Canada.
Jan. - Dec. 2000	Visiting Associate Professor. Computer Science Dept, U. Crete, Greece.
Jan. 2000	Habilitation à Diriger des Recherches. Title: "Algebraic and geometric algorithms". Engineering School, University of Nice & Sophia-Antipolis, France.
October 1999	Visiting Researcher, Electro-Technical Lab, Tsukuba, Japan.
Jan. - Jul. 1995	Postdoctorate Fellow, HCM Program, EU. INRIA Sophia-Antipolis, France.
December 1994	Ph.D. in Computer Science, University of California at Berkeley. Thesis title: "Sparse Elimination and Applications in Kinematics." Committee: Professors J.F. Canny (adviser), K. Ribet, and R. Seidel.
May 1991	M.Sc. in Computer Science, UC Berkeley. Adviser: Prof. J.F. Canny.
June 1989	B.Sc.Eng. in Computer Science, Princeton U.; High Honors. Thesis Adviser: Prof. R.E. Tarjan.

3 Teaching Experience

NKUA, Department of Informatics & Telecoms, Associate professor and Professor

- Discrete Mathematics (1st year, Fall). 2002, 2004–08, 2016–now.
- Mathematics for Computer Science (3rd year). 2008, 2010.
- Software development for hard algorithmic problems (4th year, Fall). 2014–now.
- Computational Geometry (4th year, Spring). 2002–08, 2010–12, 2014–16.
- Special Topics in Theoretical Informatics: Algorithms in structural molecular biology (4th year, Spring). 2005, 2008, 2010, 2015–16.
- Computational Geometry (Grad, Spring). 2003, 2005–08, 2010–12, 2014–16.
- Computational Algebra (Grad, Fall). 2003, 2005–07, 2010–11, 2013–16.
- Algorithms in Structural Bioinformatics (Grad, Spring). 2008, 2010–12, 2014–16; jointly with MSc in Informatics Technologies in Medicine and Biology. Algebraic and Geometric Algorithms in Molecular Biology (Grad), 2004–06; jointly with MSc in Bioinformatics (Biology dept).

Greek Open University, Scientific collaborator
Foundations of Computer Science: Algorithms and Complexity (3rd year), 2005-06.

University of Crete, Department of Computer Science, Visiting Associate professor
– Data Structures (2nd year). Fall 2000.
– Discrete Mathematics (1st year). Spring 2000.
– Computational Geometry (Grad, half course). Spring 2000.
– Algebraic Algorithms (Grad, half course). Spring 1999.

University of Marseilles, Department of Mathematics. Visiting instructor
Computer Algebra (1/2 course), Spring 1998. MSc Discrete Math & Foundations of Computer Science.

University of Nice, Department of Mathematics. Visiting instructor
– Computer algebra and System solving (Grad, half course). Spring 1995–1997, 2001.
– Combinatorics and Probability (3rd year, classes). Fall 1997.
– Linear Algebra and Optimization for Physicists and Engineers (2nd year, classes). Spring 1997.

UC Berkeley, Department of EECS. Teaching assistant (1989-91)

4 Research collaborators and Students

Postdoctoral/Research collaborators

E. Markou, 2004-06. I. Kotsireas, 2006-08. E. Tsigaridas, 2010. C. Konaxis, 2011, 2014-now. L. Penaranda, 2011. T. Luu Ba, 2012. C. Fragoudakis, R. Vidunas, 2013-14. I. Avrithis, 2015.

Doctoral students

1. Elias Tsigaridas (2/03–9/06). Algebraic algorithms and applications to geometry.
2. George Tzoumas (5/05–9/09). Computational geometry for curved objects and Voronoi diagrams in the plane.
3. Christos Konaxis (8/05–6/10). Algebraic algorithms for system solving and applications to robotics.
4. Christos Syrseloudis (8/05–6/11). Efficient algorithms for the study, the design, and the kinematics of parallel robots, with applications to physiotherapy.
5. Tatjana Kalinka (9/09–6/13). Change of representation of rational curves and surfaces.
6. Vissarion Fisikopoulos (10/09–4/14). High-dimensional polytopes defined by oracles: algorithms, computations and applications.
7. Anna Karasoulou (9/11–6/17). Algebraic combinatorics and resultant methods for polynomial system solving.
8. Ioannis Psarros (since 5/15). Dimensionality reduction and Geometric search in general dimension.
9. Vangelis Bartzos (since 4/16). Algebraic elimination for modeling motion.
10. Vangelis Anagnostopoulos (since 4/16). Approximate geometric algorithms for massive pointsets.
11. Clément Laroche (since 9/16). Algebraic and point-cloud representations of geometric objects.

Master's and Bachelor's theses

- MSc, Dept Informatics & Telecoms, NKUA: K. Zervoudakis (2001), A. Kakargias (2004), G. Tzoumas (2005), M. Karousos (2005), K. Tsirogiannis (2007), Z. Zafirakopoulos (2008), A. Mantzaflaris (2008), C. Zarkadas (2011), M. Sotiropoulou (2013), K. Gavriil (2016), G. Samaras (2017), A. Chalkis (2018).
- MSc in Logic, Algorithms & Computation, joint with Math dept: C. Konaxis (2005). D. Diochnos (2006). A. Varvitsiotis, V. Fisikopoulos (2009). A. Konstantinakis-Karmis, M. Thanos-Filis (2012). D. Nicolopoulos (2014). I. Psarros (2015). L. Kavouras (2016). G. Avarikioti, E. Anagnostopoulos (2017).
- MSc in Bioinformatics (Dept of Biology until 2006): E. Fritzilas (2005). I. Valavanis, S. Pantos (2006). T. Manousidou (2012). M. Fytros, A. Kalamara (2014). A. Fotopoulos, A. Papathanasiou (2015), E. Christoforou (2017).
- MSc Computer Science Dept, Univ. of Crete at Heraklio: T. Nikitopoulos (2001).
- MSc Université de Nice et Sophia-Antipolis: T. Giordano (1996), F. Livigni (1996), P. Mario (2000), C. Gaudon (2000).
- Supervised 21 students on their Bachelor's thesis.

5 Research Projects

2017–2021 Learning and Analyzing Massive / Big complex Data (LAMBDA). Research and Innovation Staff Exchange (M. Sklodowska Curie), H2020. Consortium: NKUA (Greece, coordinator), 3DShapes Ltd (UK), AXA Assurances (France), Ohio State U., Stanford U., UC Berkeley (USA). Coordinator.

2016–2019 Algebraic Representations for Computer-Aided Design of complEx Shapes (ARCADES). Initial Training Network (M. Sklodowska Curie), H2020. Consortium: ATHENA (Greece, coordinator), U. Barcelona (Spain), INRIA Sophia-Antipolis (France), J. Kepler U. (Austria), SINTEF (Norway), U. Strathclyde (UK), TU Wien (Austria), Evolute GmBH (Austria). Coordinator.

2015–2016 CloudFlow. Innovation for Manufacturing I4MS (ICT), FP7. Electronic Design Automation: modeling of MEMS sensors on the cloud. Partners: HELIC Inc. (Greece, coordinator), ATHENA, ESS Ltd (Greece). Site leader.

2012–2015 ESPRESSO: Exploiting Structure in Polynomial Equation and System Solving with Applications to Geometric and Game Modeling. Aristeia (Excellence), Greek Ministry of Development. Coordinator.

2012–2015 Geometric computing and critical applications. Thales Project, Greek Ministry of Education. Partners: National Technical University of Athens, FORTH (Heraklion, Crete). Coordinator.

2010–2013 Computational Geometry Learning. FET-Open STREP (IST), FP7. Partners: U. Jena (Germany, coordinator), U. Groeningen (Holland), ETH Zürich (Switzerland), Freie U. Berlin (Germany), INRIA (France), U. Tel-Aviv (Israel). NKUA Site Leader.

2008–2012 Shapes, Geometry, and Algebra (SAGA). Initial Training Network (Marie Curie), FP7. Partners: SINTEF (Norway, coordinator), INRIA Sophia-Antipolis (France), J. Kepler U. (Austria), Kongsberg GmBH (Austria), Missler Software (France), GraphiTech (Italy), U. Oslo (Norway), U. Cantabria (Spain), Vilnius U. (Lithuania). NKUA site Leader.

2005–2008 Algorithms for Complex Shapes, with certified numerics (ACS). FET-Open STREP (IST), FP7. Partners: U. Groeningen (Holland, coordinator), ETH Zürich (Switzerland), Freie U. Berlin (Germany), GeometryFactory (France), INRIA (France), MPI (Germany), U. Tel-Aviv (Israel). NKUA site Leader.

2005–2009 Efficient algorithms for parallel robots with applications to physiotherapy. PENED, Greek Ministry of Development. Partner: Reflexion Ltd. Coordinator.

2006–2008 Efficient algorithms and implementations for representing and handling curves and surfaces. ENTER, Greek Ministry of Development. Partner: MP & Associates Ltd. Coordinator.

2004–2007 Geometric algorithms for curved objects and applications. "Pythagoras", Greek Ministry of Education. Coordinator.

2003–2007 Algebraic algorithms for system solving, structured matrices. Associate Team with Galaad, INRIA Sophia-Antipolis. NKUA site Leader.

2004–2006 Calibration of space robots for earth observation. PLATON bilateral collaboration with INRIA Sophia-Antipolis. NKUA site Leader.

2001–2004 Effective Computational Geometry for Curves and Surfaces (ECG). FET-Open STREP (IST), FP6. Consortium: INRIA (coordinator), ETH Zürich, Freie U. Berlin, MPI, U. Groeningen, U. Tel-Aviv. Member of INRIA.

2002–2003 Distance Geometry and Genomics. Multilateral project with CNRS-Montpellier, INRA, Institut Pasteur (Paris). Member of INRIA.

2001–2003 Robust methods in algebraic system solving and applications to geometric modeling. Bilateral Project with U. Buenos Aires (ECOS-Sud). INRIA Site Leader.

2002 Surface implicitization and singularities (SIMPLES). Bilateral Project with INRA Avignon. INRIA funding. Coordinator.

2000–2001 Algebraic and numeric methods for solving sparse polynomial systems and their applications to economics, finance and game theory. Bilateral project with City U. Hong-Kong (Procore). INRIA Site Leader.

1998–1999 Symbolic-numeric methods for solving sparse systems of algebraic equations. Bilateral collaboration with U. Patras, Greece (PLATON). Member of INRIA.

1997–1999 Robust tools for numeric computation (FIABLE). INRIA network.

1996–1999 Framework for the Integration of Symbolic-Numeric Computing (FRISCO). ESPRIT Reactive LTR project 21.024. Member of INRIA Sophia-Antipolis.

Nov. 1996 Univ. of North Carolina, Computer Science Dept. Collaboration with Prof. D. Manocha

1994–1995 Silma Corporation, San Jose, California. Consultant for robotics applications.

6 Professional Service and Honors (selected)

Citations	Hirsch's H-index = 36 (Google scholar).
Journal editor	• *Journal of Symbolic Computation*, Elsevier. Associate editor, since Aug. 2003. • *Mathematics for Computer Science*, Birkhauser. Associate editor, since Jan. 2017. • *Theoretical Computer Science*, Guest co-editor (with B. Mourrain and V. Pan), Special Issue on Symbolic-Numeric Algorithms, published in 2004. • *Computational Geometry: Theory & Applications*, Elsevier. Guest co-editor (with L. Palios), Special Issue on Europ. Workshop Comp. Geom. 2006, published in 2008. • *Journal of Symbolic Computation*. Guest co-editor (with E. Schost), Special Issue on ISSAC 2011, published in 2013.
Program Comm. Chair	• Annual ACM International Symposium on Symbolic & Algebraic Computation (ISSAC) 2011, San Jose, Calif.
Program Committee member	• Annual ACM Intern. Symposium on Symbolic & Algebraic Computation (ISSAC): 2001, 2007, 2012, 2014, 2017. • SIAM Conference on Applied Algebraic Geometry, Colorado 2013. • 20th European Symposium on Algorithms (ESA 2012), Algorithm Engineering Track, Ljubljana 2012. • Annual ACM/SIAM Joint Conference on Geometric and Physical Modeling 2011 (Orlando), 2010 (Israel), 2009 (San Francisco), 2008 (New York). • International conference on Geometric Modeling and Processing, June 2010, Spain. • International Workshop on Computer Algebra in Scientific Computing (CASC): 2005–2013. • Annual International IEEE Engineering in Medicine & Biology Conference, 2009, 2011, 2013. • Computer Graphics International (CGI) 2004, 2013, 2014. • Annual International Conference on Algebraic Informatics 2009, Greece. • IEEE Conference on Bioinformatics and Bioengineering (BIBE) 2008, Greece. • Workshop on Symbolic-Numeric Computation (SNC) 2005, 2007. • International Mathematica Symposium, Avignon, France, 2006.
Boards	Advisory board. International conference on Effective Methods in Algebraic Geometry (MEGA), 2004–today. Tutorial chair. Annual ACM Intern. Symposium on Symbolic & Algebraic Computation (ISSAC), 2008.
Service in the Department (selected)	2004. Member of exam committee of International Olympiad of Informatics. 2004–today. Student exchanges with U. Nice, France, and U. Lugano, Switzerland (Erasmus). 2005–2009. Head of Committee on Research and Development. 2007–today. Member of the coordination committee of the Grad program in Informatics technologies in Medicine and Biology. 2010–today. Coordinator of bilateral agreement between NKUA and INRIA Méditerranée Sophia-Antipolis (France), and Greek contact for INRIA's International Internship program. 2010–2012. Head of Division on Theoretical Computer Science.
Promotion committees	Several in NKUA and Greek Universities; two times coordinator. Frederick University, Cyprus. "Habilitation à Diriger des Recherches": two times.

Distinctions

2016. Invited speaker. Annual ACM International Symposium on Symbolic & Algebraic Computation, 2016; Waterloo, Canada.
2010. Distinguished Paper Award, Annual ACM International Symposium on Symbolic & Algebraic Computation 2010, "The DMM bound: multivariate aggregate separation bounds", with B. Mourrain and E. Tsigaridas.
2002. Distinguished Paper Award, Annual ACM International Symposium on Symbolic & Algebraic Computation 2002, "Multihomogeneous Resultant Formulae by Means of Complexes", with A. Dickenstein.
1995. TMR Postdoc fellowship award, European Commission (declined).
1990–94. Non-resident tuition scholarship, EECS Dept., UC Berkeley.
1988–89. Elected to honorary societies Tau Beta Pi (engineering), Sigma Xi (scientific), and Phi Beta Kappa (academic).
1985–89. Full tuition, room and board scholarship, Princeton University.

Conferences / Schools Organized

International Workshop on Symbolic-Numeric Algebra for Polynomials (SNAP), 7/96, INRIA Sophia-Antipolis; co-organizer.

Special session on Sparse Elimination Methods in Polynomial System Solving, AMS Spring Eastern Meeting, 4/98, Philadelphia, Pennsylvania; co-organizer.

CIMPA-Unesco School on Solving Systems of Polynomial Equations, Buenos-Aires. Co-organized with A. Dickenstein, 2003. Followed by: I Latin-american Workshop on Systems of Polynomial Equations, 7/03, Buenos-Aires.

2nd Latin-american School and Workshop on Polynomial Systems, 2/05, Angra dos Reis, Brazil, co-organizer.

International Workshop on Computer Algebra in Scientific Computing (CASC), 9/05, Kalamata, Greece, co-organizer.

European Workshop of Computational Geometry, 3/06, Delphi, Greece; co-organizer.

Global optimization: Integrating convexity, optimization, logic programming & computational algebraic geometry, Fall 2006, E. Schrödinger Institute, Vienna. Coordinator: A. Neumeier.

Institute of Mathematics and its Applications (IMA), Minneapolis. Special Year on Applications of Algebraic Geometry, 2006-07. Co-organized the Concentration and Workshop on Nonlinear Computational Geometry.

School on Shapes, Geometry, and Algebra (SAGA), October 2010, Kolympari, Greece.

Research Workshop on Computational Geometric Learning (CGL), 30 September – 2 October, 2013, Vravrona, Greece.

LAMBDA Project Kickoff workshop, June 2017, NKUA, Greece.

ARCADES Project Workshop and Midterm review, November 2017, Athens, Greece.

7 Invited Talks (selected)

- AMS-MAA Joint Mathematics Meetings ; 1/1993.
- AMS-IMS-SIAM Conference on Continuous Algorithms & Complexity, Mt. Holyoke, USA; 6/1994
- International Geometric Software Workshop, The Geometry Center, Minneapolis; 1/1995.
- French Conference on Computational Geometry, Le Bessat, France; 3/1996.
- Intern. Algebraic Conference in memory of D. Fadeev, Plenary session, St. Petersburg, Russia; 6/1997.
- Dagstuhl seminar on Symbolic-algebraic methods and Verification: Saarbrücken, Germany, 11/1999.
- AMS-IMS-SIAM Conference on Computer Algebra: Solving equations in algebra, geometry and engineering, Mt. Holyoke, Mass.; 6/2000.
- Dagstuhl seminar on the Integration of geometric and algebraic software, Saarbrücken, Germany; 2001.
- Fields Institute Conference on Symbolic Computational Algebra, London, Ontario; 7/2002.
- Conference on Foundations Of Computational Mathematics (FOCM), Minneapolis, USA; 8/2002.
- Spanish Conference on Computer Algebra (EACA), Valladolid, Spain; 9/2002.
- DIMACS workshop on the Implementation of geometric algorithms; New Jersey, 12/2002.
- Dagstuhl seminar on computational geometry, Saarbrücken, Germany; 2003.
- French Conference on Computational Geometry, Giens, France; 9/2003.
- Workshop on Geometry of NMR and structural molecular biology, McGill center, Barbados; 1/2005.
- Oberwolfach mini-workshop on Algebraic surfaces and syzygies, Oberwolfach; 11/2007.
- Conference of SIAM Group on Algebraic Geometry and Applications, Raleigh, USA; 10/2011.
- Workshop on Geometry and Applications, McGill center, Barbados; 2/2014.
- Dagstuhl seminar on Geometric modeling, Saarbrücken, Germany; 2014.
- Semester on Algebraic complexity, Simons Institute, U.C. Berkeley; 2014.
- Dagstuhl seminar on Computational Geometry, Saarbrücken, Germany; 2015.
- Workshop on Symbolic-Numeric Computation, Fields Institute, Toronto; 2015.
- Annual ACM International Symposium on Symbolic & Algebraic Computation (ISSAC), Plenary speaker, 2016.
- Joint Research Center, Ispra, Italy; October 2017.
- Plekhanov Russian University, Moscow, Russia; November 2017.

8 Personal Information

Year / Place of Birth: 1966 / Athens, Greece.
Country of Citizenship: Greece.
Family Status: Married, two children.

9 Publications

(chronological order)

(a) Book and Edited Volumes

[1] I.Z. Emiris, B. Mourrain, and V. Pan, editors. *Theor. Comp. Science. Spec. Issue on Algebraic & Numerical Algorithms*, volume 315(2-3):307–672. Elsevier, May 2004.

[2] A. Dickenstein and I.Z. Emiris, editors. *Solving Polynomial Equations: Foundations, Algorithms and Applications*, volume 14 of *Algorithms and Computation in Mathematics*. Springer-Verlag, Berlin, May 2005.

[3] I.Z. Emiris and L. Palios, editors. *Comput. Geometry: Theory & Applic. Spec. Issue on the 22nd European Workshop on Computational Geometry 2006*, volume 41. Elsevier, October 2008.

[4] I.Z. Emiris. *Computational geometry: A modern algorithmic approach.* Kleidarithmos, Athens, Greece, November 2008. In Greek.

[5] I.Z. Emiris, F. Sottile, and T. Theobald, editors. *Nonlinear computational geometry*, volume 151 of *I.M.A. volumes in Math & its Applications*. Springer, Berlin, October 2010.

[6] I.Z. Emiris and E. Schost, editors. *J. Symbolic Computation, Spec. Issue on Annual ACM Intern. Symp. on Symbolic and Algebraic Computation 2011*, volume 52. Elsevier, May 2013.

(b) Book Chapters

[1] I.Z. Emiris, A. Galligo, and H. Lombardi, Numerical univariate polynomial GCD. In *The Mathematics of Numerical Analysis*, volume 32 of *Lectures in Applied Math.*, pages 323–343. AMS, 1996.

[2] I.Z. Emiris. Symbolic-numeric algebra for polynomials. In A. Kent and J.G. Williams, editors, *Encyclopedia of Computer Science and Technology*, volume 39, pages 261–281. Marcel Dekker, New York, 1998.

[3] I.Z. Emiris and V.Y. Pan. Applications of FFT. In M.J. Atallah, editor, *Handbook of Algorithms and Theory of Computation*, chapter 17. CRC Press, Boca Raton, Florida, 1999. Revised chapter 18: Applications of FFT and Structured matrices, 2010 edition, eds M.J. Atallah and M. Blanton.

[4] A. Díaz, I.Z. Emiris, E. Kaltofen, and V.Y. Pan. Algebraic algorithms. In M.J. Atallah, editor, *Handbook of Algorithms and Theory of Computation*, chapter 16. CRC Press, Boca Raton, Florida, 1999. Revised chapter 17: Algebraic and Numeric Algorithms, 2009 edition, by I.Z. Emiris, V.Y. Pan and E. Tsigaridas, eds M.J. Atallah and M. Blanton. New revision to appear in 2014 edition, also CUNY TR-2012001 (http://tr.cs.gc.cuny.edu/tr).

[5] I.Z. Emiris. Matrix methods for solving algebraic systems. In G. Alefeld, J. Rohn, S. Rump, and T. Yamamoto, editors, *Symbolic Algebraic Methods and Verification Methods*, Springer Mathematics, pages 69–78. Springer-Verlag, Wien, 2001.

[6] I.Z. Emiris. Discrete geometry for algebraic elimination. In M. Joswig and N. Takayama, editors, *Algebra, Geometry, and Software Systems*, Mathematics and Visualization, pages 77–91. Springer-Verlag, Berlin, 2003.

[7] C. D'Andrea and I.Z. Emiris. Sparse resultant perturbations. In M. Joswig and N. Takayama, editors, *Algebra, Geometry, and Software Systems*, Mathematics and Visualization, pages 93–107. Springer-Verlag, Berlin, 2003.

[8] I.Z. Emiris. Sparse resultant and applications to geometric modelling. In A. Dickenstein and I.Z. Emiris, editors, *Solving Polynomial Equations: Foundations, Algorithms and Applications*, volume 14 of *Algorithms and Computation in Mathematics*. Springer-Verlag, Berlin, April 2005.

[9] I.Z. Emiris and I.S. Kotsireas. Implicitization exploiting sparseness. In R. Janardan, M. Smid, and D. Dutta, editors, *Geometric and Algorithmic Aspects of Computer-Aided Design and Manufacturing*, volume 67 of *DIMACS*, pages 281–298. AMS/DIMACS, 2005.

[10] I.Z. Emiris and E.P. Tsigaridas. Minkowski decomposition of convex lattice polygons. In *Algebraic geometry and geometric modeling*, Mathematics & Visualization, pages 217–236. Springer, 2005.

[11] I.Z. Emiris, B. Mourrain, and E.P. Tsigaridas. Real algebraic numbers: Complexity analysis and experimentations. In P. Hertling, C. Hoffmann, W. Luther, and N. Revol, editors, *Reliable Implementation of Real Number Algorithms: Theory and Practice*, volume 5045 of *LNCS*, pages 57–82. Springer, 2008.

[12] I.Z. Emiris, E. Tsigaridas, and A. Varvitsiotis. Mixed volume and distance geometry techniques for counting Euclidean embeddings of rigid graphs. In A. Mucherino, C. Lavor, L. Liberti, and N. Maculan, editors, *Distance Geometry: Theory, Methods and Applications*. Springer, 2013.

[13] A. Dickenstein, I.Z. Emiris, and A. Karasoulou. Plane mixed discriminants and toric jacobians. In *SAGA: Advances in ShApes, Geometry, and Algebra*, volume 10 of *Geometry and Computing*, pages 105–121. Springer, 2014.

[14] I.Z. Emiris, T. Kalinka, and C. Konaxis. Sparse implicitization via interpolation. In *SAGA: Advances in ShApes, Geometry, and Algebra*, volume 10 of *Geometry and Computing*, pages 39–51. Springer, 2014.

[15] I.Z. Emiris and A. Karasoulou. Sparse discriminants and applications. In R. De Amicis and G. Conti, editors, *Future Vision and Trends on Shapes, Geometry and Algebra*, volume 84 of *Proc. Math. & Stat.*, pages 55–71. Springer, 2014.

(c) Theses

[1] I.Z. Emiris. An efficient approach to removing geometric degeneracies. Master's Thesis, Computer Science Division, Univ. of California at Berkeley, May 1991. Committee: Professors J. Canny and B. Barsky.

[2] I.Z. Emiris. *Sparse Elimination and Applications in Kinematics*. PhD Thesis, Computer Science Division, Univ. of California at Berkeley, December 1994. Committee: Professors J. Canny, R. Seidel, K. Ribet.

[3] I. Emiris. *Algorithmes Algébriques et Géométriques*. Habilitation à diriger des recherches, Université de Nice – Sophia-Antipolis, École Doctorale des Sciences pour l'Ingénieur, January 2000. Rapporteurs : Prof. J. Canny, Dr. P. Flajolet, Dr. B. Philippe.

(d) Journal Articles

[1] I.Z. Emiris and J.F. Canny. A general approach to removing degeneracies. *SIAM J. Computing*, 24(3):650–664, 1995.

[2] I.Z. Emiris and J.F. Canny. Efficient incremental algorithms for the sparse resultant and the mixed volume. *J. Symbolic Computation*, 20(2):117–149, 1995.

[3] I.Z. Emiris. On the complexity of sparse elimination. *J. Complexity*, 12:134–166, 1996.

[4] I.Z. Emiris and V.Y. Pan. Techniques for exploiting structure in matrix formulae of the sparse resultant. *Calcolo, Special Issue on Toeplitz Matrices*, 33(3–4):353–369, 1996.

[5] I.Z. Emiris, J.F. Canny, and R. Seidel. Efficient perturbations for handling geometric degeneracies. *Algorithmica, Special Issue on Computational Geometry in Manufacturing*, 19(1/2):219–242, Sep./Oct. 1997.

[6] I.Z. Emiris, A. Galligo, and H. Lombardi. Certified approximate univariate GCDs. *J. Pure & Applied Algebra, Special Issue on Algorithms for Algebra*, 117 & 118:229–251, May 1997.

[7] I.Z. Emiris. A complete implementation for computing general dimensional convex hulls. *Intern. J. Computational Geometry & Applications, Special Issue on Geometric Software*, 8(2):223–253, 1998.

[8] I.Z. Emiris, V.Y. Pan, and Y. Yu. Modular arithmetic for linear algebra computations in the real field. *J. Symbolic Computation*, 26(1):71–87, July 1998.

[9] I.Z. Emiris and B. Mourrain. Computer algebra methods for studying and computing molecular conformations. *Algorithmica, Special Issue on Algorithms for Computational Biology*, 25:372–402, 1999.

[10] H. Brönnimann, I.Z. Emiris, V. Pan, and S. Pion. Sign determination in Residue Number Systems. *Theor. Comp. Science, Spec. Issue on Real Numbers & Computers*, 210(1):173–197, 1999.

[11] I.Z. Emiris and J. Verschelde. How to count efficiently all affine roots of a polynomial system. *Discrete Applied Math., Special Issue on Comput. Geom.*, 93(1):21–32, 1999.

[12] I.Z. Emiris and B. Mourrain. Matrices in elimination theory. *J. Symbolic Computation*, 28:3–44, 1999. Special Issue on Elimination.

[13] J.F. Canny and I.Z. Emiris. A subdivision-based algorithm for the sparse resultant. *J. ACM*, 47(3):417–451, May 2000.

[14] I.Z. Emiris and V.Y. Pan. Symbolic and numeric methods for exploiting structure in constructing resultant matrices. *J. Symbolic Computation*, 33:393–413, 2002.

[15] I.Z. Emiris. Enumerating a subset of the integer points inside a Minkowski sum. *Comp. Geom.: Theory & Appl., Spec. Issue*, 22(1-3):143–166, 2002.

[16] C. D'Andrea and I.Z. Emiris. Hybrid sparse resultant matrices for bivariate polynomials. *J. Symbolic Computation*, 33(5):587–608, 2002. Special Issue.

[17] D. Daney and I.Z. Emiris. Variable elimination for reliable parallel robot calibration. *Electr. J. Computat. Kinematics*, 1(1), 2002.

[18] A. Dickenstein and I.Z. Emiris. Multihomogeneous resultant formulae by means of complexes. *J. Symbolic Computation*, 36(3-4):317–342, 2003. Special issue on ISSAC 2002.

[19] I.Z. Emiris and T.G. Nikitopoulos. Molecular conformation search by distance matrix perturbations. *J. Math. Chemistry*, 37(3):233–253, April 2005.

[20] I.Z. Emiris and V.Y. Pan. Improved algorithms for computing determinants and resultants. *J. Complexity, Special Issue*, 21:43–71, 2005. Special Issue on FOCM-02.

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