

Emmanuel Hainry

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current situation: Maître de conférences (assistant professor) at Nancy Université - Université Henri Poincaré and Loria.

Experience

2008- Assistant Professor at Université Henri Poincaré, Nancy.

2007-2008 Post-doctorate at Université Henri Poincaré.

feb.-july 2007 Post-doctorate stay at Université Catholique de Louvain (Belgium)

2004-2007 Research grant for PhD and teachings at Institut National Polytechnique de Lorraine.

2000-2004 Student at École Normale Supérieure de Lyon.

Education

2006 Computer Science PhD at INPL entitled “Modèles de calcul sur les réels, résultats de comparaison”. defended on december 7th, 2006 in front of:

- Jean-Yves Marion, PhD supervisor
- Olivier Bournez, PhD advisor
- Serge Grigorieff, rapporteur
- Giuseppe Longo, rapporteur
- Vincent Blondel, president
- José Félix Costa, examiner
- Jean-Paul Haton, examiner

2003-2006 LORIA (Laboratoire lorrain de recherche en informatique et ses applications), INPL (Institut National Polytechnique de Lorraine)
PhD, advisors: Olivier Bournez and Jean-Yves Marion

2002-2003 École Normale Supérieure de Lyon
DÉA d’Informatique Fondamentale (equiv: Master)

Publications

My publications can be obtained at <http://www.loria.fr/~hainry/>.

PhD Thesis

- [1] E. HAINRY – “Modèles de calcul sur les réels, résultats de comparaison ”, Thèse de doctorat, Institut National Polytechnique de Lorraine, décembre 2006.

International journals

- [2] O. BOURNEZ et E. HAINRY – “Elementary computable functions over the real numbers and R-sub-recursive functions”, *Theoretical Computer Science* **348** (2005), no. 2-3, p. 130–147.
- [3] O. BOURNEZ et E. HAINRY – “Recursive analysis characterized as a class of real recursive functions”, *Fundamenta Informaticae* **74** (2006), no. 4, p. 409–433.
- [4] O. BOURNEZ, M. L. CAMPAGNOLO, D. S. GRAÇA et E. HAINRY – “Polynomial differential equations compute all real computable functions on computable compact intervals”, *Journal of Complexity* **23** (2007), no. 3, p. 317–335.
- [5] O. BOURNEZ, W. GOMAA et E. HAINRY – “Algebraic characterizations of complexity-theoretic classes of real functions”, *International Journal of Unconventional Computing* **7** (2011), no. 5, p. 331–351.
- [6] O. BOURNEZ, D. S. GRAÇA et E. HAINRY – “Computation with perturbed dynamical systems”, *Journal of Computer and System Sciences* **79** (2013), no. 5, p. 714 – 724.

International Conferences

- [7] O. BOURNEZ et E. HAINRY – “An analog characterization of elementary computable functions over the real numbers”, *International Colloquium on Automata, Languages and Programming (ICALP 2004) Turku, Finlande* (J. Díaz, J. Karhumäki, A. Lepistö et D. Sannella, éd.), Lecture Notes in Computer Science, vol. 3142, 2004, p. 269–280.
- [8] O. BOURNEZ et E. HAINRY – “Real recursive functions and real extensions of recursive functions”, *Machines, Computations, and Universality (MCU 2004) St. Pétersbourg, Russie* (M. Margenstern, éd.), Lecture Notes in Computer Science, vol. 3354, Springer-Verlag, 2005, p. 116–127.
- [9] O. BOURNEZ, M. L. CAMPAGNOLO, D. S. GRAÇA et E. HAINRY – “The general purpose analog computer and computable analysis are two equivalent paradigms of analog computation”, *Theory and Applications of Models of Computation (TAMC 2006) Pékin, Chine* (J.-Y. Cai, S. B. Cooper et A. Li, éd.), Lecture Notes in Computer Science, vol. 3959, Springer, 2006, p. 631 – 643.
- [10] O. BOURNEZ et E. HAINRY – “On the computational capabilities of several models”, *Machines, Computations, and Universality (MCU 2007) Orléans, France* (J. Durand-Lose et M. Margenstern, éd.), Lecture Notes in Computer Science, vol. 4664, Springer-Verlag, 2007, p. 12–23.
- [11] E. HAINRY – “Reachability in linear dynamical systems”, *Computability in Europe 2008, Athènes, Grèce* (A. Beckmann, C. Dimitracopoulos et B. Löwe, éd.), Lecture Notes in Computer Science, vol. 5028, Springer-Verlag, 2008, p. 241–250.
- [12] E. HAINRY – “Computability of omega-limit sets in linear dynamical systems”, *Unconventional Computation 2008, Vienne, Autriche* (C. S. Calude, J. F. Costa, R. Freund, M. Oswald, et G. Rozenberg, éd.), Lecture Notes in Computer Science, vol. 5204, 2008, p. 83–95.
- [13] O. BOURNEZ, D. S. GRAÇA et E. HAINRY – “Robust computations with dynamical systems”, *Mathematical Foundations of Computer Science 2010, MFCS 2010, Brno, Czech Republic* (P. Hliněný et A. Kučera, éd.), Lecture Notes in Computer Science, vol. 6281, Springer, 2010, p. 198–208.
- [14] H. FÉRÉE, E. HAINRY, M. HOYRUP et R. PÉCHOUX – “Interpretation of stream programs: characterizing type 2 polynomial time complexity”, *International Symposium on Algorithms and Computation (ISAAC)* (Jeju Island, South Korea) (O. Cheong, K.-W. Chwa et K. Park, éd.), Lecture Notes in Computer Science, vol. 6506, Springer, 2010, p. 291–303.
- [15] E. HAINRY, J.-Y. MARION et R. PÉCHOUX – “Type-based complexity analysis for fork processes”, *Foundations of Software Science and Computation Structures* (F. Pfenning, éd.), Lecture Notes in Computer Science, vol. 7794, 2013, p. 305–320.

International Workshops

- [16] O. BOURNEZ et E. HAINRY – “An analog characterization of elementarily computable functions over the real numbers”, *2nd APPSEM II Workshop, APPSEM'04* (Tallinn, Estonie), 2004.
- [17] E. HAINRY – “Recursive analysis and real recursive functions”, Workshop Computation on the Continuum (Lisbonne, Portugal), juin 2005.
- [18] E. HAINRY – “Subrecursion in recursive analysis”, WICC 08, Workshop on Implicit Computational Complexity (Villetaneuse), février 2008.
- [19] E. HAINRY – “Decidability in continuous time dynamical systems ”, Workshop New Worlds of Computation (Orléans), janvier 2009.
- [20] E. HAINRY et R. PÉCHOUX – “Types for controlling heap and stack in Java”, Fopara 2013, Third International Workshop on Foundational and Practical Aspects of Resource Analysis (Bertinoro, Italie), aout 2013.

National Workshops

- [21] E. HAINRY – “An analog characterization of elementarily computable functions over the real numbers”, Groupe de travail Complexité, Modèles finis et Bases de données (Lausanne, Suisse), mai 2004.
- [22] E. HAINRY – “Recursive analysis against real recursive functions”, Geocal06, Geometry of Computation (Marseille), février 2006.
- [23] E. HAINRY – “General purpose analog computers are as powerful as computable analysis”, Workshop Complexité, Modèles finis et Bases de données et Journées arithmétique faible (Clermont-Ferrand), juin 2006.
- [24] E. HAINRY – “GPAC vs analyse récursive”, École de Jeunes Chercheurs en Informatique Mathématique, Nancy, mars 2007.
- [25] E. HAINRY – “Recursive Analysis: Computability and Complexity”, Logic and Interaction 2012, Complexity Session, Marseille, janvier 2012.
- [26] E. HAINRY – “Computability and Complexity over the reals”, Inria Jam Sessions, Nancy, juin 2012.

Collective responsibilities

- Leader of the *ComputR* Équipe Associée with SQIG-IT, Portugal.
- Co-organisator of the “Theory of Computer Viruses” 2007 workshop. <http://tcv.loria.fr/>
- Co-organisator of “Complexité, modèles finis et bases de données” 2007 workgroup. <http://cmfbd2007.loria.fr/>
- Former webmaster of the PROTHERO project website: <http://protheo.loria.fr/>.

Work groups

I belong to the following working groups:

- Action de Recherche Coopérative CaCO₃ ;
- Équipe Associée ComputR ;
- Computability in Europe network ;
- Work group “Complexité, Modèles Finis et Bases de Données” ;
- Weak arithmetic days;

- GEOCAL project (geometry of computation);
- APPSEM II network (Applied Semantics II)