Curriculum Vitae

Luca Castelli Aleardi
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Italian citizen

Positions

2007 – 2008 : **post-doc researcher** at the Computer Science Departement of "Université Libre de Bruxelles" (ULB, Belgium), *Algorithms research group.*

2006 – 2007 : full time **Assistant Lecturer** ("ATER"), at CS Departement, University of "Marne-la-Vallée" (France).

Education

2003 – 2006 : **PhD** in Computer Science, CS Departement ("Laboratoire d'Informatique" LIX), École Polytechnique (France). Supervisors : Olivier Devillers (Inria Sophia-Antipolis) and Gilles Schaeffer (CNRS, LIX). Thesis subject : Compact representations of geometric data structures.

2002–2003 : **DEA "Algorithmique"** (master degree in Theoretical Computer Science), University "Pierre et Marie Curie" (Paris VI), "mention Bien".

1995–2002 : **"Laurea in Matematica"** (Master degree in Mathematics), University of Milan (Italy), 110/110 magna cum laude. Advisor : Prof. Daniele Mundici.

Research

2004 – 2007 : involved in the "**GeoComp**" project (Compression of geometric data), supported by the french ACI "Masses de Données".

Internships

Spring 2003 : 6 months **DEA** internship at the Geometrica project (formerly Prisme), Inria Sophia-Antipolis, advisor Olivier Devillers. Title : "*Optimal compression of maximal planar graphs and extension to the 3-connected case*".

2001–2002 : "**Tesi di Laurea**" (master's thesis) prepared at the "Soft Computing and Fuzzy logic" laboratory (CS Dept., University of Milan), advisor Prof. Daniele Mundici, title : "*Unimodality, unimodularity and greedy strategies for piecewise linear approximations of minimum complexity*".

1999 : 6 months **Erasmus** internship, at the Mathematics Departement of the University of "Versailles St-Quentin" (France).

Teaching

2006 – 2007 : Assistant Lecturer in CS (full time), "Institut Gaspard Monge", University of Marne-la-Vallée.
Programming in C (96h+36h TD/TP), first year undergraduate.
Data structures (18h TP), second year undergraduate.
Advanced programming in Java (24h, TP), second year undergraduate.

2006 : teaching assistant at the CS Departement École Polytechnique (40 hours)
"The principles of programming languages" (INF 321), 40h TD.

2006 : teaching assistant at EFREI (Villejuif).
Data structures (32hours), second year undergraduate.

2005 : teaching assistant at the CS Departement École Polytechnique (20 hours)
The basis of Computer Science and programming (third year undergraduate), 20 hours.

2004-2006 : other teaching activities at École Polytechnique.
Design and Analysis of Algorithms, INF551 (2hours TD, M2).
Fundamentals of Computer Science, INF431 (4hours TD, M1).
Algorithmics and Programming, INF421 (4hours TD, M1).

Professional activity

Consulting : conception and implementation of algorithmic solutions for *Volkswagen Coaching GMBH (Wolfsbourg, Germany)*, june 2005.

Referee : reviewer for International Journals and Conferences : Theoretical Computer Science, ACM-SIAM Symposium on Discrete Algorithms (SODA 2006), Graphics Interface 2006, Pacific Graphics 2005.

Honors and awards

2005-06 : french gouvernment fellowship (Ministère des Affaires Étrangères), accorded by the Embassy of France in Rome.

2003-05 : fellowship of the University de Milan (CS Dept.).

2003-04 : french gouvernment fellowship (MAEF), accorded by the Embassy of France in Rome (declined).

1999 : 6 months Erasmus internship.

Languages

- **Français** fluent
- **Anglais** good familiarity
- **Espagnol** good comprehension
- **Italian** mother tongue

Skills

- programming : good and long experience of Java, good familiarity with C/C++ ; basic notions of Pascal, Fortran, Basic.
- other : Windows 9x/2000/XP, Linux, Latex.

Talks

International conferences and workshops

- Succinct representations of labeled graphs, *Journées en l'honneur de D. Knuth*, Bordeaux, France (29-31 october 2007)
- Optimal succinct representations of planar maps, *22nd ACM Symposium on Computational Geometry (SoCG06)*, Sedona USA (4-6 june 2006)
- Succinct Representation of Triangulations with a Boundary, *Workshop on Algorithms and Data Structures (WADS)*, University of Waterloo, ON. Canada (15-17 august 2005)
- Dynamic Updates of Succinct Triangulations, *Canadian Conference on Computational Geometry (CCCG)*, University of Windsor, ON. Canada (10-12 august 2005)
- Canonical Tiangulation of a Graph, with a Coding Application, *Franco-Canadian Workshop on Combinatorial Algorithms (COMAL)*, Mc Master University, Hamilton, ON. Canada (18-20 august 2005)

Summer schools and other scientific events

- Succinct representation of labeled graphs, *Journées Géométrie et Informatique (JGI07)*, INRIA Sophia Antipolis (14-15 june 2007).
- GEOCOMP : Structures de données compactes et représentation des maillages de surface, *Journées Paristic*, LORIA, Nancy (22-24 november 2006)
- Représentations succinctes optimales pour les maillages, *Journée Compression d'objets 3D*, ENST, Paris (19 october 2006)
- Représentation succincte optimale de cartes planaires, *Journées de Géométrie Algorithmique (JGA06)*, Le Bessat (30 january - 3 february 2006)
- Représentation succincte de triangulations, *Journées de Géométrie Algorithmique et Discrète (JGAD05)*, Institut Henri Poincaré, Paris (13-14 september 2005)
- Représentation succincte de triangulations avec un bord, *Journées ALEA 2005*, CIRM Luminy, Marseille (7-11 march 2005)
- Représentation compacte de triangulations, *Journées de Géométrie Algorithmique (JGA05)*, St. Pierre de Chartreuse (24-28 january 2005)
- Triangulation Canonique d'un graphe 3-connexe, *Journées de Géométrie Algorithmique et Discrète (JGAD04)*, Marne la Vallée (23-24 september 2004)
- Canonical Triangulation of a Graph, with a Coding Application, *Workshop Telegeo*, INRIA Sophia-Antipolis (6-7 november 2003)

Seminars

– Compact representations of geometric data structures, IGM, Université Marne la Vallée (22 mai 2007).

– Compact representations of geometric data structures, *Algorithms and Complexity seminar*, LRI, Université Paris 11, Orsay (12 avril 2007).

– Compact representations of geometric data structures,*Computer Science Seminar*, Université Libre de Bruxelles (ULB), Bruxelles (march 2007).

– Compact representations of geometric data structures, University of Toronto, ON. Canada (january 2007).

– Compact representations of geometric data structures, *Algorithms and Complexity Seminar*, University of Waterloo, ON. Canada (january 2007)

– Succinct representations of triangulations with a boundary, *séminaire GeCoal*, Ecole Normale Supérieure, Paris (june 2005)

Publications

International conferences

- J. Barbay, L. Castelli Aleardi, M. He et I. J. Munro. Succinct representations of labeled graphs, in *Proc. of the 18th Int. Symposium on Algorithms and Computation (ISAAC 2007)*, Springer LNCS, vol. 4835, p. 316-328.
- Luca Castelli Aleardi, Olivier Devillers et Gilles Schaeffer. Optimal succinct representations of planar maps, in *Proc. of the 22nd ACM Symposium on Computational Geometry (SoCG 2006)*, p. 309-318.
- Luca Castelli Aleardi, Olivier Devillers et Abdelkrim Mebarki. 2D Triangulation Representation using Stable Catalogs, in *Proc. of the 18th Canadian Conference on Computational Geometry (CCCG 2006)*, p. 71-74.
- Luca Castelli Aleardi, Olivier Devillers et Gilles Schaeffer. Succinct representation of triangulations with a boundary, in *Proc. of the 9th Workshop on Algorithms and Data Structures (WADS 2005)*, Springer LNCS, vol. 3608, p. 134-145.
- Luca Castelli Aleardi, Olivier Devillers et Gilles Schaeffer. Dynamic updates of succinct triangulations, in *Proc. of the 17th Canadian Conference on Computational Geometry (CCCG 2005)*, p. 135-138.

Preprints submitted

- Luca Castelli Aleardi, Eric Fusy et Thomas Lewiner. Schnyder woods for higher genus triangulated surfaces, submitted to the *ACM Symp. on Computational Geometry (SoCG08)*.
- Luca Castelli Aleardi, Olivier Devillers et Gilles Schaeffer. Optimal succinct representations of planar maps, submitted to *Theoretical Computer Science (special issue in honor of F. Preparata)* (long version of SoCG06).

Workshops

- L. Castelli Aleardi et O. Devillers. Canonical Triangulation of a Graph, with a Coding Application, *Franco-Canadian Workshop on Combinatorial Algorithms (COMAL)*, McMaster University, Hamilton, ON. Canada, 18-20 august 2005, p. 23.

Technical reports

- Luca Castelli Aleardi and Olivier Devillers. Canonical Triangulation of a Graph, with a Coding Application. Rapport de recherche 5231, INRIA, 24 pages, 2004.
- Luca Castelli Aleardi, Olivier Devillers, and Gilles Schaeffer. Compact representation of triangulations. Rapport de recherche 5433, INRIA, 20 pages, 2004.

– Luca Castelli Aleardi, Olivier Devillers and Gilles Schaeffer. Dynamic updates of succinct triangulations. Rapport de recherche 5709, INRIA, 23 pages, 2005.
– Luca Castelli Aleardi, Olivier Devillers and Gilles Schaeffer. Optimal succinct representations of planar maps. Rapport de recherche 5803, INRIA, 26 pages, 2006.

Miscellanea

– Luca Castelli Aleardi. *Représentations compactes de structures de données géométriques*. PhD thesis, Ecole Polytechnique, december 2006.
– Luca Castelli Aleardi. *Compression optimale de graphes planaires maximaux et extension au cas 3-connexe*. Master thesis (DEA Algorithmique), University "Pierre et Marie Curie" (Paris 6), France, september 2003.
– Luca Castelli Aleardi. *Unimodalità, unimodularità e strategie greedy nall'approssimazione lineare a tratti di minima complessità*. Master thesis (Tesi di Laurea), Departement of mathematics, "Università degli Studi di Milano", july 2002.