

# Biagio Cosenza

*Phd Student*

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*Curriculum updated on June 11, 2010.*

## Personal Data

name Biagio  
surname Cosenza  
birth date September 28, 1982  
birth place Belvedere Marittimo (Cosenza), Italy  
citizenship Italian

## Office Address

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Corso Umberto I, 118  
87014 Laino Borgo (CS), Italy

## Research Interests

Computer Graphics and Parallel Computing

## Current Position

PhD Student at ISISLab, Dip. di Informatica ed Applicazioni, Università degli Studi di Salerno, Italy  
advisor Prof. Vittorio Scarano

## Experience

Sept 2010 **DAAD Research Grant (Deutscher Akademischer Austauschdienst).**  
I was the recipient of a scholarship funded by the German Academic Exchange Service. The project has been supervised by Prof. Carsten Dachsbacher. The subject of the grant was *A Parallel Approach for Scalable Lighting*.

May-July 2009 **HPC Europa2 Transnational Access**, *HLRS*, Universität Stuttgart, Germany.  
I have been visiting researcher in the HPC-Europa2 programme, funded by the European Community, for the mobility of researchers on Computational Sciences with High Performance and Parallel Computers. I worked at the *HLRS Supercomputing Center* in Stuttgart, hosted by VISUS at the Universität Stuttgart, supervised by Prof. Thomas Ertl and Prof. Carsten Dachsbacher. The subject of the visit was *Synergy effects of hybrid CPU-GPU architectures for Interactive Parallel Ray Tracing*.

May-July 2008 **HPC Europa++ Transnational Access**, *HLRS*, Universität Stuttgart, Germany.  
I have been visiting researcher in the HPC-Europa++ programme, funded by the European Community, for the mobility of researchers on Computational Sciences with High Performance and Parallel Computers. I worked at the *HLRS Supercomputing Center* in Stuttgart, hosted by VISUS at the Universität Stuttgart, supervised by Prof. Thomas Ertl and Prof. Carsten Dachsbacher. The subject of the visit was *An evaluation of adaptive subdivision schemas for Parallel Ray Tracing*.

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## Education

Nov 2007–now **PhD Student**, *ISISLab*, Dip. di Informatica ed Applicazioni, Università degli Studi di Salerno, Italy.

advisor Prof. Vittorio Scarano

2004–2007 **Master Degree in Computer Science**, Università degli Studi di Salerno, Italy.  
*Grade 110/110 cum laude*

advisor Prof. Vittorio Scarano

thesis Interactive Ray Tracing on Parallel Architectures

Design of a parallel ray tracing framework for a cluster of workstations. We developed a demand-driven parallel version investigating in load balancing issues and we tested it in a full-reflective scene using Whitted-style Ray Tracing. We showed interactive performance on a cluster of 37 nodes, reaching up to 15 fps.

2001–2004 **Bachelor Degree in Computer Science**, Università degli Studi di Salerno, Italy.  
*Grade 110/110 cum laude*

advisor Prof. Vittorio Scarano

thesis An architecture for P2P systems in Java

Design and implementation of a pure P2P distributed system, based on Distributed Hash Table using a Chord-like routing protocol (FibChord). Implementation in Java using RMI. The final work includes a remote implementation of Java Collections Framework.

## Schools, Courses and Seminars

Oct. 22-23, 2009 7th Eurographics Italian Chapter Conference - Verona, Italy

September 2009 Advanced School on Parallel Computing - CINECA, Bologna, Italy

September 2009 International Summer School on Software Engineering - Salerno, Italy

March 2009 The Google Story - prof. Alessandro Panconesi (La Sapienza)

March-April 2009 Introducing proof complexity - prof. N. Galesi (La Sapienza)

July 2009 Ad Hoc and Sensor Networks - prof. Roger Wattenhofer (ETH, Zurich)

May-July 2009 VISUS Kolloquium, Seminars hold at VISUS, Universität Stuttgart

- May 12, 2009 Hybrid Supercomputing: Mapping the Characteristics of Applications and Hardware (Access Grid Surgery of HPC-Europa 2) - Dr.-Ing. Sabine P. Roller (HLRS, Universität Stuttgart)
- Sep-Oct 2008 Coordination and Collaboration in Software Development - Prof. Andrea De Lucia (Università degli Studi di Salerno)
- July 25, 2008 Model checking - Prof. Salvatore La Torre (Università degli Studi di Salerno)
- May-July 2008 VISUS Kolloquium, Seminars hold at VISUS, Universität Stuttgart
- April 22, 2008 Transducer Generated 2D Languages Implemented by DNA Self-assembly - Prof. Natasha Jonoska (State University of New York at Binghamton)
- April 21, 2008 Computational intelligence and bioinformatics - Prof. Roberto Tagliaferri (Università degli Studi di Salerno)
- March 6, 2008 Search based software testing: heuristic search to reduce costs - Prof. Giuliano Antoniol (Ecole Polytechnique de Montreal, Canada)
- January 2008 Advanced Geographical Database Architectures - Prof. Robert Laurini (National Institute for Applied Sciences of Lion)
- March-May 2008 Course in Scientific Computing - prof. Beatrice Paternoster (Università degli Studi di Salerno)

### Certifications

- July 2005 Sun Certified Programmer for the Java Platform 1.4

### Teaching

- Sep-Jan 2009 **Computer Science's Course Tutorship Activities**, Università degli Studi di Salerno, Italy.  
 Course of Computer Systems Architecture (*Architettura degli Elaboratori*), taught by Filomena De Santis.  
 I was the recipient of 3 grants for tutorship, total amount of 36 hours. Such grants have been supplied by the Science Faculty (Facoltà di Scienze Matematiche Fisiche e Naturali, Corso di Laurea in Informatica, Codice concorso 36/46).

### Languages

- Italian **mother tongue**
- English **good**
- French **basic**

### Publications

#### Journals

- [1] Gennaro Cordasco, Biagio Cosenza, Rosario De Chiara, Ugo Erra, and Vittorio Scarano. Experiences with Mesh-like computations using Prediction Binary Trees. *Scalable Computing: Practice and Experience, Scientific international journal for parallel and distributed computing (SCPE)*, 10(2):173–187, June 2009.

#### Referred Papers

- [2] Biagio Cosenza, Gennaro Cordasco, Rosario De Chiara, Ugo Erra, and Vittorio Scarano. Load Balancing in Mesh-like Computations using Prediction Binary Trees. In *7th International Sym-*

posium on Parallel and Distributed Computing (ISPDC 2008), 1-5 July 2008, Krakow, Poland, 2008.

- [3] Biagio Cosenza, Gennaro Cordasco, Rosario De Chiara, Ugo Erra, and Vittorio Scarano. On Estimating the Effectiveness of Temporal and Spatial Coherence in Parallel Ray Tracing. In *6th Eurographics Italian Chapter Conference (EGITA 2008)*, July 2-4, Salerno, Italy, 2008.
- [4] Biagio Cosenza. A Survey on Exploiting Grids for Ray Tracing. In *6th Eurographics Italian Chapter Conference (EGITA 2008)*, July 2-4, Salerno, Italy, 2008.

### Reports

- [5] Biagio Cosenza. Evaluation of Adaptive Subivision Schemas for Parallel Ray Tracing. Technical report, Science and Supercomputing in Europe. HPC Europa project report, 2008.
- [6] Biagio Cosenza. Synergy Effects of Hybrid CPU-GPU Architectures for Interactive Parallel Ray Tracing. Technical report, Science and Supercomputing in Europe. Research Highlights, 2009.

### Papers in other topics

- [7] A. Poater, B. Cosenza, A. Correa, S. Giudice, F. Ragone, V. Scarano, and L. Cavallo. SambVca: A Web Application for the Calculation of the Buried Volume of N-Heterocyclic Carbene Ligands. *European Journal of Inorganic Chemistry*, 2009(13):1759–1766, 2009.

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## Others

### Posters

Load Balancing Strategies for Parallel Ray Tracing. *HPC-Europa++ TAM Workshop 2008*. Dec. 15-17, 2008 - HLRS Supercomputing Center, Universität Stuttgart, Germany

### Talks

Synergy effects of hybrid CPU-GPU architectures for Interactive Parallel Ray Tracing *TAM HPC-Europa 2009*, October 14-16, 2009 - Montpellier, France

A Survey on Exploiting Grids for Ray Tracing, *6th Eurographics Italian Chapter (EGITA 2008)*. July 2-4, 2008 - Salerno, Italy

On Estimating the Effectiveness of Temporal and Spatial Coherence in Parallel Ray Tracing. *6th Eurographics Italian Chapter (EGITA 2008)*. July 2-4, 2008 - Salerno, Italy

Visualisierungskolloquium on Parallel Ray Tracing. July 17, 2008 - VISUS, Universität Stuttgart

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## Hobbies

River canoeing and rafting. I rode several rivers, attending to river trips and expeditions, competing in canoe slalom contest. I have a canoe trainer certification and a V level rafting guide patent. I took also a BLS (Basic Life Support) certification.

Playing alto saxophone.