

Contact Information	19, Ellispontou Str, Vyronas, 16232, Athens, Greece	<i>Mobile:</i> +30 6973 054281 <i>E-mail:</i> nvlassopoulos@gmail.com
Civil Service	Completed (2007 – 2008)	
Research Interests	Parallel Algorithms and Architectures, Distributed Algorithms, Mathematical modeling of Biological Systems, Multi-agent systems, Bio-inspired algorithms and bio-inspired computing, Cellular Automata, Epidemic Spread models and their Critical Behavior, Genetic Algorithms, Neural Networks, Models of Evolution, Self-Organized criticality, Sand-pile model, Cryptography, Graph Theory and Random Graphs, Consciousness and Cognition.	
Education	National and Kapodistrian University of Athens , Athens, Greece PhD, Physics Department, June 2008 <ul style="list-style-type: none"> • Thesis Title: <i>Efficient Parallel FFT Architectures</i> • Thesis Proposal: <i>Parallel Architectures for Cryptography</i> • Supervisor: Assistant Professor D. Reisis • Area of Study: Parallel Architectures M.Sc. in Electronic Automation, Physics Dpt. - Informatics Dpt., February 2002 <ul style="list-style-type: none"> • Thesis Topic: <i>Integration of a *DSL modem receiver</i> • Detailed Description: Design and implementation of several DSP and interfacing hardware modules on FPGA (time-domain equalizer, suffix-prefix handling, digital I/O interfaces, and others) for a *DSL modem and integration of the receiver of the modem. • Supervisor: Assistant Professor D. Reisis • Area of Study: Hardware Architectures for Telecommunication and Digital Signal Processing components B.Sc. (“ <i>Ptychion</i> ”), Physics, June 2000 <ul style="list-style-type: none"> • Division: <i>Applied Physics, Electronics Laboratory</i> • Thesis Subject: Programming, Algorithms, Database Management Systems 	
Academic Appointments	Postdoctoral Researcher LORIA – INRIA Nancy, Équipe MaIA (Machines Intelligentes Autonomes)	September 2009 to May 2011
	Main Research Directions: <ul style="list-style-type: none"> • Experimental and theoretical study of the AMYBIA bio-inspired, multi-agent aggregation scheme • Experimental study of the critical behavior of the stochastic Greenberg-Hastings reaction-diffusion Cellular Automaton • Use of genetic algorithms to evolve high quality, high throughput Cellular Automata as Pseudo-random number generators 	
Journal Publications	<i>Note:</i> In the first four and the last paper, the author names are in alphabetical order D. Reisis and N. Vlassopoulos, “Conflict-free parallel memory accessing techniques for FFT architectures,” <i>Circuits and Systems I: Regular Papers, IEEE Transactions on</i> , vol. 55, pp. 3438 –3447, Dev. 2008. K. Babionitakis, G. Doumenis, G. Georgakarakos, G. Lentaris, K. Nakos, D. Reisis, I. Sifnaios and N. Vlassopoulos, “A real-time H.264/AVC VLSI encoder architecture,” <i>Journal of Real-Time Image Processing</i> , vol. 3, pp. 43–59, 2008 doi:10.1007/s11554-007-0054-9	

- K. Babionitakis, G. Doumenis, G. Georgakarakos, G. Lentaris, K. Nakos, D. Reisis, I. Sifnaios and N. Vlassopoulos, "A real-time motion estimation FPGA architecture," *Journal of Real-Time Image Processing*, vol. 3, pp. 3–20, 2008
doi:10.1007/s11554-007-0070-9
- K. Babionitakis, V. Chouliaras, K. Manolopoulos, K. Nakos, D. Reisis and N. Vlassopoulos, "Fully systolic FFT architecture for giga-sample applications," *The Journal of Signal Processing Systems*, vol. 58, no. 3, pp. 281–299, 2009.
- B. Girau, C. Torres-Huitzil, N. Vlassopoulos and J. H. Barrón-Zambrano, "Reaction diffusion and chemotaxis for decentralized gathering on FPGAs," *International Journal of Reconfigurable Computing*, vol. 2009, pp. 1 – 15, 2009.
- K. Tsakalis, N. Vlassopoulos, G. Lentaris and D. Reisis, "A control-theoretic approach for efficient design of filters in DAC and digital audio amplifiers," *Circuits, Systems, and Signal Processing*, vol. 30, pp. 421–438, 2011
doi:10.1007/s00034-010-9231-3

Conference Publications

- Note:* In most publications the authors' names are in alphabetical order
- K. Manolopoulos, K. Nakos, D. Reisis, and N. Vlassopoulos, "Reconfigurable Fast Fourier Transform architecture for Orthogonal Frequency Division Multiplexing systems," in *Proceedings of the International Conference on Computer, Communication and Control Technologies*, vol. VI, pp. 24–29, June 2003
- K. Babionitakis, K. Manolopoulos, K. Nakos, D. Reisis, and N. Vlassopoulos, "A memory efficient, low power Fast Fourier Transform architecture," in *The IEE, ACM SoC Design, Test and Technology Postgraduate Seminar*, September 2004.
- K. Babionitakis, K. Manolopoulos, K. Nakos, D. Reisis, N. Vlassopoulos, and V. Chouliaras, "A high performance VLSI FFT architecture," in *IEEE International Conference on Electronics, Circuits and Systems*, pp. 810–813, December 2006.
- K. Babionitakis, G. Lentaris, K. Nakos, D. Reisis, N. Vlassopoulos, G. Doumenis, G. Georgakarakos, and I. Sifnaios, "An efficient H.264 VLSI advanced video encoder," in *IEEE International Conference on Electronics, Circuits and Systems*, pp. 545–548, December 2006.
- D. Reisis and N. Vlassopoulos, "Address generation techniques for conflict free parallel memory accessing in FFT architectures," in *IEEE International Conference on Electronics, Circuits and Systems*, pp. 1188–1191, December 2006.
- N. Vlassopoulos, D. Reisis, G. Lentaris, G. Tombras, E. Prosalentis, N. Ritas, and K. Tsakalis, "An approach for efficient design of digital amplifiers," in *IEEE International Symposium on Circuits and Systems*, June 2006.
- K. Manolopoulos, K. Nakos, D. Reisis, N. Vlassopoulos, and V. Chouliaras, "High performance 16k, 64k, 256k VLSI systolic FFT architectures," in *IEEE International Conference on Electronics, Circuits and Systems*, pp. 146–149, December 2007.
- K. Nakos, D. Reisis, and N. Vlassopoulos, "Addressing technique for parallel memory accessing in Radix-2 FFT processors," in *IEEE International Conference on Electronics, Circuits and Systems*, August 2008.
- V. Chouliaras, P. Galiatsatos, K. Nakos, D. Reisis, and N. Vlassopoulos, "Efficient cascaded VLSI FFT architecture for OFDM systems," in *IEEE International Conference on Electronics, Circuits and Systems*, 2009.
- N. Vlassopoulos, N. Fatès, H. Berry, and B. Girau, "An FPGA design for the stochastic Greenberg-Hastings Cellular Automata," in *International Conference on High Performance Computing and Simulation*, (New Jersey, USA), pp. 565–574, IEEE, June 2010 (*Extended version to be published in a Special Issue of the Journal of Cellular Automata*)

	<p>N. Fatès and N. Vlassopoulos, “A robust aggregation method for quasi-blind robots in an active environment,” in <i>Proceedings of International Conference on Swarm Intelligence</i>, 2011 (<i>Extended version submitted to a Special Issue of the “International Journal of Swarm Intelligence Research”</i>).</p> <p>B. Girau and N. Vlassopoulos, “Tiled cellular automata for area-efficient distributed random number generators,” in <i>PECCS 2011 - Proceedings of the 1st International Conference on Pervasive and Embedded Computing and Communication Systems, Vilamoura, Algarve, Portugal, 5-7 March, 2011</i> (C. Benavente-Peces and J. Filipe, eds.), pp. 397–404, SciTePress, 2011.</p> <p>N. Vlassopoulos and N. Fatès, “Clustering behavior of a bio-inspired decentralized aggregation scheme,” in <i>Proceedings of the Eleventh European Conference on the Synthesis and Simulation of Living Systems (ECAL2011)</i> (T. Lenaerts, M. Giacobini, H. Bersini, P. Bourguine, M. Dorigo, and R. Doursat, eds.), 2011.</p>
Reports	<p>N. Vlassopoulos and N. Fatès, “How fast can virtual amoebae aggregate? analysis for the optimal firing rate in an instance of the reaction-diffusion-chemotaxis aggregation scheme,” Tech. Rep., LORIA INRIA Nancy, 2009, http://hal.inria.fr/inria-00462156/en/</p>
Referee Service	<ul style="list-style-type: none"> • <i>International Conference on Cybernetics and Information Technologies, Systems and Applications</i> • <i>IEEE Micro Magazine</i> • <i>IEEE Transactions on Circuits and Systems for Video Technology</i> • <i>IEEE International Conference on Electronics, Circuits and Systems</i> (ICECS) • <i>IEEE Transactions on Computers, Circuits and Systems I</i> • <i>European Conference on Artificial Life, 2011</i> • <i>Journal of the Franklin Institute</i>
Conference Service	<p>AUTOMATA 2010</p> <p>Participated in the local organizing committee</p>
Teaching Experience	<ul style="list-style-type: none"> • Participated as an instructor in a series of Seminars on Video Encoding Hardware Architectures given in the context of the <i>Parallel Algorithms and Architectures</i> course of the Electronic Automation MSc program during my PhD thesis. • Participated as assistant in the laboratory courses for <i>Introduction to Programming</i> and <i>Programming II</i> courses of the Physics department. • “Productivity Applications” course for a private educational institute • “TCP/IP and Networking” seminar for a private educational institute
Conferences, Workshops, Summer Schools	<p>International Conference on Computer, Communication and Control Technologies, Orlando, FL Aug. 2003</p> <p>IEEE International Symposium on Circuits and Systems, Kos, Greece May 2006</p> <p>3^d Summer School on Financial Mathematics – Stochastic Finance, Chios, Greece 17–22 July 2006</p> <p>IEEE International Conference on Electronics, Circuits and Systems, Nice, France Dec. 2006</p> <p>IEEE International Conference on Electronics, Circuits and Systems, Malta Aug. 2008</p> <p>International Conference on High Performance Computing & Simulation, Caen, France 2010</p>

Workshop on Statistical Physics and Biology of Collective Motion (COLMOT10),
Dresden, Germany 2010
- Contributed a presentation on the [AMYBIA](#) decentralized aggregation scheme

Participation in Projects

- NEWCOM Network of Excellence Software Defined Radio 2004-2007
- Integrated Networked Optical Sensor (INOS) – IST 2004
 - Design and implementation of a programmable Motion Estimation / Motion Compensation engine for a VLSI H.264 video encoder that supported all the block matching algorithms
 - Design and implementation of the Network Abstraction Layer (NAL), Integration and Testing
- Wind-Flex Wireless Modem – IST 2001
 - Design and implementation of the Residual Phase Noise estimator
 - Contributed in the design and implementation of the FFT/IFFT components
- Stingray Wireless MIMO Modem – IST 2001
 - Contributed in the design and implementation of the FFT/IFFT components
 - Contributed in the design and implementation of several telecommunication components
- High Performance Digital Processing and Electronics for Audio and Home Theatre Applications (HIPRO) – IST 2001
 - Design of the FPGA components for a Class-D amplifier
 - Studied and contributed in the implementation of several audio processing modules, such as the *oversampling filters*, *digital dither* and noise *shaping components*, as part of a research that started during the project.
- Broadband Copper Communication Components (BC³) – ESPRIT 2000
 - Design and implementation of several telecommunication and DSP components for the receiver module of the *DSL modem
 - Integration of the receiver module
- Multimedia Database of the [Dental School](#) of the National and Kapodistrian University of Athens 1999
- Patient Management Database of the [Dental School](#) of the National and Kapodistrian University of Athens 1999
- Digital Library of the Institute of Constitutional Research, [Law School](#), National and Kapodistrian University of Athens 1998
- Project Information Prepared for Exploitation and Reference (P.I.P.E.R), Telematics Application Programme 1997

Professional Experience

- Axilica Ltd** 07/2008 to 08/2009
Software Engineer, worked on the company's FalconML tool and in several internal projects
- Compupress S.A.** 2000 – 2002
Worked as columnist for the “Computer for All” magazine published by the company. My main responsibility was a tutorial column on GNU/Linux, but I also wrote several articles / tutorials on other topics.
- Compulink S.A.** 1999
Worked as a Software Engineer in the “Research and Development” and “Web Development” departments.
- Freelance Programmer** 2000-2006
Self-employed freelance programmer, where I undertook several projects.

Miscellaneous Projects

Software-based spectrum analyzer while serving my duty in the Hellenic Army
2008

Several Database Projects for Office Automation while serving my duty in the
Hellenic Army 2008

Hardware and Software Skills

Hardware:

- Hardware Design with VHDL, Verilog and Schematics targeting both FPGAs ([Xilinx](#), [Altera](#)) and VLSI
- Xilinx ISE, Altera Quartus design Environments
- Modelsim simulator, gtkwave and others
- Experience with [Alliance](#) VLSI design tools
- PCB design (mostly with free for non-commercial use tools, such as [Eagle](#))

Embedded System Design:

- Atmel microcontrollers, [LEON Sparc](#) on FPGAs and others
- Embedded operating systems: Experience mostly with [eCos](#), but also [TinyOS](#), [FreeRTOS](#), [RTEMS](#)

Programming:

- C/C++, Python, Java, miscellaneous other programming languages (PHP, ASP, Javascript, Basic / Visual Basic, Pascal, Unix shell scripting)
- Assembly language for the x86, SPARC and Z80 architectures
- Language design tools: ANTLR, Yacc, Flex, Ragel and others
- Scientific Tools: Matlab, Octave, [numpy](#) and [scipy](#) Python libraries, [SSJ Statistical](#) library Java, miscellaneous other tools and libraries
- SQL
- POSIX Programming (POSIX Threads, etc)

Networking:

- Network programming (UDP, TCP socket programming)
- Due to my involvement in telecommunication projects, I have a solid knowledge on all network layers, ranging from the physical to the application layer.

Version Control:

- SVN, CVS

Operating Systems (Administration and Programming):

- Microsoft Windows family (mostly WinAPI and MFC)
- GNU/Linux
- DBMS Administration (MySQL, MSSQL Server)

Foreign Languages

English (Fluent)
German
French

Lower Diploma
Mittelstufe Diploma
Basic

Hobbies

Music:

Playing guitar, aleatoric music, computer assisted music synthesis
Digital audio system design (but not always implement)

Painting

Studying

Comics and Science Fiction

Trying to find the hardest possible solution to simple problems

References

Dr. Dionysios Reisis

E-mail: dreisis@phys.uoa.gr

- Assistant Professor, [Physics Department](#), National and Kapodistrian University of Athens, Greece
- Prof. Reisis was my MSc and PhD supervisor

Dr. Nazim Fatès

E-mail: nazim.fates@loria.fr

- Chargé de Recherche, Equipé **MaIA**, **LORIA** – INRIA Nancy
- Dr. Fatès was my supervisor during my position as post-doctoral researcher in the MaIA team.

Dr. Bernard Girau

E-mail: bernard.girau@loria.fr

- Professor, Informatics Department, Faculty of Science and Technology, **Université Henri Poincaré Nancy 1**
- Equipé **Cortex**, **LORIA** – INRIA Nancy
- Prof. Girau was my co-supervisor while working as a post-doctoral researcher in the MaIA team. We have collaborated in the research of using Cellular Automata as pseudo-random number generators (a research whose results have not been yet published), but also in the use of FPGAs for simulating CAs.