

# Nicolas BERTHIER



Born 11/19/1985  
French Nationality  
Bachelor

✉ University of Liverpool  
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## Research Interests

Reactive Control Techniques for Systems Design, Model-based Design, Global Control for Resource and Energy Management in Embedded Systems, Kernel Architecture, Hardware and Operating System-level Virtualization, Programming Languages for Systems Design, Operating Systems Design and Implementation

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## Research Experience

- Dec 2015–...     **RESEARCH ASSOCIATE** in the [Department of Computer Science](#) of the [University of Liverpool](#)  
*Research on control techniques for energy efficient circuits design*
- Jun 2013  
–Nov 2015     **POSTDOCTORAL FELLOW** in [SUMO Team](#), [INRIA Rennes — Bretagne Atlantique](#), France  
*Research on discrete controller synthesis for infinite state systems*
- Jun 2012  
–May 2013     **POSTDOCTORAL FELLOW** in [ERODS Team](#), [LIG Lab.](#), Grenoble, France  
*Investigating reactive control techniques for autonomic management systems*
- Oct 2008  
–Mar 2012     **PH.D CANDIDATE** in [Synchrone Team](#), [Verimag Lab.](#), Grenoble  
*Research on power-aware implementation of embedded systems*  
Advised by Florence Maraninchi and Laurent Mounier; Defended on March 12, 2012
- Feb–Sept 2008     **RESEARCH INTERN** in [Synchrone Team](#), [Verimag Lab.](#)  
*Research on system-level modeling of embedded control systems*  
Advised by Florence Maraninchi and Christophe Rippert
- Apr–Sept 2007     **RESEARCH INTERN** in [ISE Team](#), [Verimag Lab.](#)  
*Designed a hybrid dynamic memory management mechanism for real-time Java applications*  
Advised by Christophe Rippert and Guillaume Salagnac
- Jun–Sept 2006     **RESEARCH INTERN** in [ISE Team](#), [Verimag Lab.](#)  
*Research on the life span of dynamically allocated objects in real-time Java applications*  
Advised by Christophe Rippert and Guillaume Salagnac
- Apr–Sept 2005     **INTERN** in [OSIRIS Team](#), [TIMC Lab.](#), Grenoble  
*Investigated and developed a tool for automatic generation of graphical user interface from ISIS query*  
Advised by Ana Simonet
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## Education

2008–2012     **PH.D IN COMPUTER SCIENCE** at [Université Joseph Fourier](#), Grenoble, France

## Education *(cont'd)*

- 2005–2008 **M.RES IN COMPUTER SCIENCE (MAGISTÈRE)** at [Université Joseph Fourier](#), Grenoble, France  
*magna cum laude*
- 2006–2008 **M.Sc IN COMPUTER SCIENCE** at [Université Joseph Fourier](#)  
*cum laude*
- 2005–2006 **B.Sc IN COMPUTER SCIENCE** at [Université Joseph Fourier](#)  
*cum laude*
- 2003–2005 **UNDERGRADUATE DEGREE IN COMPUTER SCIENCE (DUT)**  
at [Université Pierre-Mendès-France](#), Grenoble
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## Publications

### Journal Articles

Nicolas Berthier, Éric Rutten, Noël De Palma, and Soguy Mak-Karé Gueye. [Designing Autonomic Management Systems by using Reactive Control Techniques](#). *IEEE Transactions on Software Engineering*, PP(99):18, December 2015.

Soguy Mak-Karé Gueye, Noël De Palma, Éric Rutten, Alain Tchana, and Nicolas Berthier. [Coordinating Self-sizing and Self-repair Managers for Multi-tier Systems](#). *Future Generation Computer Systems*, 35(0):14–26, June 2014.

Nicolas Berthier, Florence Maraninchi, and Laurent Mounier. [Synchronous Programming of Device Drivers for Global Resource Control in Embedded Operating Systems](#). *ACM Trans. Embed. Comput. Syst.*, 12(1s):39:1–39:26, March 2013.

### Conference Papers

Nicolas Berthier and Hervé Marchand. [Deadlock-Free Discrete Controller Synthesis for Infinite State Systems](#). In *54th IEEE Conference on Decision and Control, CDC '15*, December 2015.

Nicolas Berthier, Xin An, and Hervé Marchand. [Towards Applying Logico-numerical Control to Dynamically Partially Reconfigurable Architectures](#). In *5th Int. Workshop on Dependable Control of Discrete Systems, DCDS '15*. IFAC, May 2015.

Nicolas Berthier and Hervé Marchand. [Discrete Controller Synthesis for Infinite State Systems with ReaX](#). In *12th Int. Workshop on Discrete Event Systems, WODES '14*, pages 46–53. IFAC, May 2014.

Nicolas Berthier, Florence Maraninchi, and Laurent Mounier. [Synchronous Programming of Device Drivers for Global Resource Control in Embedded Operating Systems](#). In *Proceedings of the 2011 SIGPLAN/SIGBED Conference on Languages, Compilers and Tools for Embedded Systems, LCTES '11*, pages 81–90, New York, NY, USA, 2011. ACM.

### Thesis

Nicolas Berthier. [Programmation synchrone de pilotes de périphériques pour un contrôle global de ressources dans les systèmes embarqués](#). PhD thesis, Université de Grenoble, March 2012.

Nicolas Berthier. [System-level Modeling of Embedded Control Systems: a Case Study from the Automated Transfer Vehicle](#). Master's thesis, Université Joseph Fourier, June 2008.

Nicolas Berthier. [Gestion hybride de la mémoire dynamique dans les systèmes Java temps-réel](#). Magistère deuxième année, Université Joseph Fourier, September 2007.

Nicolas Berthier. [Analyse de la démographie des objets dans les systèmes Java temps-réel](#). Magistère première année, Université Joseph Fourier, September 2006.

## Other

Nicolas Berthier, Florence Maraninchi, and Laurent Mounier. [Global Platform Management by Using Synchronous Device Drivers in  \$\mu\$ -Kernel-based Systems](#). Conference on Languages, Compilers, Tools and Theory for Embedded Systems (LCTES). Fun Ideas and Thoughts Session — FIT, April 2011. (*Best FIT Presentation Award*).

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## Teaching Experience

- 2013      **TEACHING ASSISTANT** at [ISTIC, University of Rennes 1, France](#)  
*Algorithms on Graphs; tutorial class, 3rd year undergraduates*
- 2008–2011      **TEACHING ASSISTANT** at [Ensimag, Grenoble INP, France](#)  
*Computer Architecture; practical courses, 1st year engineering school*  
*Unix & Shell-script Development; lecture and practical courses, 1st year engineering school*  
*C Programming; project supervision, 1st year engineering school*  
*System Programming; project supervision, 2nd year engineering school*
- 2008–2010      **TEACHING FELLOW** at [Conservatoire National des Arts et Métiers, regional centre in Grenoble](#)  
*Algorithms and Data Structures; evening classes, lecture courses, 1st year undergraduates*
- Sept–Oct 2007      **TUTORING** at [Université Joseph Fourier, Grenoble](#)  
*Algorithms, language theory and automata; 3rd year undergraduates*

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## Language Proficiency

- French:      *native*
- English:      *fluent*
- Spanish:      *basic*

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## Miscellaneous

- Leisure: mountaineering, snowboarding
- Interests: free software advocacy, zetetics
- French driving licence B
- Ten years of scouting