

Sébastien Monnet

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Born: February 14, 1977, France.

Nationality: French

Ph.D. student in Computer Science.

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Education

- 2003–2006** **Ph.D. in Computer Science at IRISA/University of Rennes I**, Rennes, France.
Supported by a Ph.D. grant from the French Ministry of Research.
Advisors: Luc Bougé and Gabriel Antoniu.
Expected graduation: October 2006.
- 2002–2003** **M.Sc. in Computer Science at IRISA/University of Rennes I**, Rennes, France.
Ranking: 6/57. With honors.
Advisors: Christine Morin and Ramamurthy Badrinath.
- 2001–2002** **M.Sc. in Computer Science, first year, at University of Clermont-Ferrand II**, Clermont-Ferrand, France.
Ranking: 1/37. With honors.
- 2000–2001** **B.Sc. at University of Clermont-Ferrand II**, Clermont-Ferrand, France.
Ranking: 1/80. With honors.

Research interests

- Main interest** Large-scale data management, Fault tolerance, Data consistency, Replication, Group membership, Peer-to-Peer (P2P), Distributed Shared Memory (DSM).
- Ph.D. thesis** *Data management in computing grids: support for fault tolerance and data consistency.*
My main research interest is on data management for grid applications, especially concerning fault tolerance and data consistency. This is illustrated in the grid data-sharing service *JuxMem* (<http://juxmem.gforge.inria.fr/>), which stands for Juxtaposed Memory. *JuxMem* is inspired by both *DSM* (Distributed Shared Memory) and *P2P* (Peer to Peer) systems to offer a *transparent* access to *consistent* and *persistent* mutable pieces of data on a large-scale, dynamic architecture. Data availability is enforced by hierarchical replication mechanisms while the consistency is handled through hierarchical consistency protocols (built from flat and non fault-tolerant DSM's consistency protocols). Moreover, *JuxMem* offers a generic architecture providing the ability to choose different consistency protocols and/or different replication mechanisms for each piece of data it manages. Thesis done in the framework of the French GDS project (<http://www.irisa.fr/GDS/>) and started in 2003.
- Other interests** Large scale experimentations, especially experimentations with failures to stress fault-tolerance mechanisms. Gossip/endemic replication mechanisms.

Collaborations

- UIUC-INRIA** Collaboration with Indranil Gupta (University of Illinois at Urbana-Champaign)
Goal: Enable group communication at overlay level. More generally, compare deterministic versus probabilistic methods. A 2-year UIUC-INRIA collaboration grant supporting mutual visits started in 2005.
- National projects** I am actively participating into the GDS (funded by the French ACI Masses de Données, <http://www.irisa.fr/GDS/>) which gathers 3 research teams: PARIS (IRISA), GRAAL (LIP) and REGAL (LIP6). The main goal of this project is to specify, design, implement and evaluate a data sharing service for mutable data and integrate it into the DIET GridRPC environment developed by GRAAL. Experimental evaluations are performed through testbeds available in the framework of the GdX (<http://www.lri.fr/~fci/GdX/>) and Grid'5000 (<http://www.grid5000.fr/>) projects. Regular visits (a dozen of days in total) at LIP6 since October 2003, collaboration with Pierre Sens and Marin Bertier.

Scientific visits abroad

UIUC	University of Illinois at Urbana-Champaign, 1 month, June 2005. In the framework of the UIUC-INRIA collaboration. Work on the concept of malleable overlay, which adapts to the applications behavior. This stay has been followed by a one-month visit of Ramsés Morales, PhD student from UIUC, at Irisa. We are currently submitting a paper about this. It has been preceeded by a one day visit in April 2004 (invited by Josep Torellas).
UIUC	University of Illinois at Urbana-Champaign, 1 day, April 2004. Invited by Josep Torellas, presentation of my M.Sc thesis results and of <i>JuzMem</i>
UNH	University of New Hampshire, 10 days, October-November 2003. Meeting Phil Hatcher. Presentation of M.Sc thesis results.

Teaching activities

2005-2006	University of Rennes I (IFSIC) 1st year of CS: lectures and practical sessions on Mathematica (78h). 4th year of CS: practical session on operating systems (8h). 3rd year of CS: practical session on operating systems (6h).
2004-2005	University of Rennes I (IFSIC) 1st year of CS: lectures and practical sessions on Mathematica (60h). 3dr year of CS: lectures practical session on operating systems (30h).
2003-2004	University of Rennes I (IFSIC) 3dr year of CS: lectures practical session on operating systems (39h). 4th year of CS: lectures practical session on operating systems and synchronization in Java (32h).

Student advising at IRISA/INRIA, Rennes

Loïc Cudennec	M.Sc. in Computer Science at IRISA/University of Rennes I 5 months in 2005, in collaboration with Gabriel Antoniu. Subject: Data consistency models and protocols in a volatile environment.
J.-F. Deverge	M.Sc. in Computer Science at IRISA/University of Rennes I 5 months in 2004, in collaboration with Gabriel Antoniu. Subject: Consistency and volatility in a grid data sharing service.

Additional research activities

HiPC'2004	With Mathieu Jan, in charge of the submission site of the HiPC'2004 Conference on high performance computing, held in Bangalore, India. 250 submitted papers with 75 reviewers (http://www.hipc.org/).
DRUIDE'2004	Help in the organization of the French DRUIDE'2004 School about large-scale data management (http://druide2004.irisa.fr/). 80 people attended this school.
Reviewer	Euro-Par'2004 (1 paper), ICS'2004 (1 paper), NPC'2004 (2 papers), Cluster'2004 (2 papers), CCGrid'2005 (2 papers), ICDCS'2005 (3 papers), Euro-Par'2005 (1 paper), ICDCS'2006 (1 paper), IPTPS'2006 (1 paper), CCGrid'2006 (1 paper), ICPP'2006 (1 paper).

Professional experiences

2002	<i>Michelin</i> (http://www.michelin.fr/). 3 months. Subject: Evaluation of IBM Websphere Personalization. Ended with a proposal of recruitment as system engineer.
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Languages

French	Native.
English	Fluent.

List of publications

Book chapters

- [ABC⁺06] Gabriel Antoniu, Marin Bertier, Eddy Caron, Frédéric Desprez, Luc Bougé, Mathieu Jan, Sébastien Monnet, and Pierre Sens. GDS: An architecture proposal for a grid data-sharing service. In V. Getov, D. Laforenza, and A. Reinefeld, editors, *Future Generation Grids*, CoreGRID series, pages 133–152. Springer, 2006.

Journals

- [ADM06] Gabriel Antoniu, Jean-François Deverge, and Sébastien Monnet. How to bring together fault tolerance and data consistency to enable grid data sharing. *Concurrency and Computation: Practice and Experience*, (17), 2006. Extended and revised version of [ADM06]. To appear.

International conferences

- [ACM06b] Gabriel Antoniu, Loïc Cudennec, and Sébastien Monnet. A practical evaluation of a data consistency protocol for efficient visualization in grid applications. In *International Workshop on High-Performance Data Management in Grid Environment (HPDGrid 2006)*, Rio de Janeiro, Brazil, July 2006. Held in conjunction with VECPAR'06. To appear.
- [MB06] Sébastien Monnet and Marin Bertier. Using failure injection mechanisms to experiment and evaluate a grid failure detector. In *Workshop on Computational Grids and Clusters (WCGC 2006)*, Rio de Janeiro, Brazil, July 2006. Held in conjunction with VECPAR'06. To appear.
- [ACM06] Gabriel Antoniu, Loïc Cudennec, and Sébastien Monnet. Extending the entry consistency model to enable efficient visualization for code-coupling grid applications. In *6th IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGrid 2006)*, Singapore, May 2006. To appear.
- [ADM04] Gabriel Antoniu, Jean-François Deverge, and Sébastien Monnet. Building fault-tolerant consistency protocols for an adaptive grid data-sharing service. In *Proc. ACM Workshop on Adaptive Grid Middleware (AGridM 2004)*, Antibes Juan-les-Pins, France, September 2004. Available as INRIA Research Report RR-5309.
- [ABJM04] Gabriel Antoniu, Luc Bougé, Mathieu Jan, and Sébastien Monnet. Large-scale deployment in P2P experiments using the JXTA distributed framework. In *Euro-Par 2004: Parallel Processing*, number 3149 in Lect. Notes in Comp. Science, pages 1038–1047, Pisa, Italy, August 2004. Springer-Verlag.
- [MMB04a] Sébastien Monnet, Christine Morin, and Ramamurthy Badrinath. A hierarchical checkpointing protocol for parallel applications in cluster federations. In *9th IEEE Workshop on Fault-Tolerant Parallel Distributed and Network-Centric Systems*, page 211, Santa Fe, New Mexico, April 2004. Held in conjunction with IPDPS 2004, IEEE.
- [MMB04b] Sébastien Monnet, Christine Morin, and Ramamurthy Badrinath. Hybrid checkpointing for parallel applications in cluster federations. In *4th IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGrid 2004)*, Chicago, IL, USA, April 2004. Poster, electronic version.

National conferences

- [CM05] Loïc Cudennec and Sébastien Monnet. Extension du modèle de cohérence à l'entrée pour la visualisation dans les applications de couplage de code sur grilles. In *Actes des Journées francophones sur la Cohérence des Données en Univers Réparti*, Paris, November 2005.
- [DM05] Jean-François Deverge and Sébastien Monnet. Cohérence et volatilité dans un service de partage de données dans les grilles de calcul. In *Actes des Rencontres francophones du parallélisme (RenPar 16)*, pages 47–55, Le Croisic, April 2005.

For further information please refer to my personal web page.

Software

JuxMem	Publicly available on the INRIA forge at: http://juxmem.gforge.inria.fr/ under the GNU Lesser Public License (LGPL). I evaluate my contribution at more than 7000 lines of Java code and more than 2000 lines of C code.
JDF	Several contributions to the JDF project, a deployment tool for JXTA-based applications. Available at: http://jdf.jxta.org/ .
Simulation	Discrete event simulator developed in the framework of the UIUC-INRIA collaboration (more than 3500 lines of Java code).

References

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