Christine Morin

Christine Morin received an engineering degree from the Institut National des Sciences Appliquées (INSA), of Rennes (France), in 1987 and master and PhD degrees in computer science from the University of Rennes I in 1987 and 1990, respectively. In March 1998, she got the Habilitation à diriger des recherches in computer science from the Université de Rennes 1.

Since 1991, she has held a researcher position at INRIA and has carried out her research activities at IRISA/INRIA-Rennes. Since January 2000, she has been a member of the PARIS project-team at IRISA/INRIA-Rennes. From October 2000 to August 2002, she has held a temporary assistant professor position at IFSIC (University of Rennes I). She now holds a senior researcher position at INRIA.

Research Interests

Her research interests are in operating system, distributed system, fault tolerance and cluster, grid and cloud computing.

She leads the XtreemOS European Integrated Project, started in June 2006. XtreemOS is a four year project aiming at the design, implementation and promotion of an open source Linux-based operating system to support Virtual Organizations for next generation Grids (http://www.xtreemos.eu).

She leads Kerrighed research activities aiming at the design and implementation of a single system image cluster operating system for high performance computing (http://www.kerrighed.org). Kerrighed software, based on Linux, is available as an open source software under the GPL licence.

She leads the Vigne research activity aiming at the design of a distributed system for very large and dynamic Grids (http://www.irisa.fr/paris/web/GridOS.html)

PhD supervised

- **Alain Gefflaut**, Proposition and evaluation of a highly available scalable shared memory architecture, January 1995.
- **Anne-Marie Kermarrec**, An approach based on replication for high avalability and efficiency of scalable shared memory systems), October 1996.
- **Stéphane Billiart**, Heterogeneous system management : a proposition for uniformization), February 1999.
- **Akhil Sahai**, Design and implementation of a mobile network manager based on the mobile agent technology), January 1999.
- **Renaud Lottiaux**, Global memory management in a cluster for a single system image system : implementation in Gobelins, December 2001.
- **Geoffroy Vallée**, Design of an adaptive global processus scheduler for global resource management in clusters : implementation in Kerrighed operating system, March 2004.
- **Pascal Gallard**, Design of a comuunication system for cluster distributed systems: implementation in Kerrighed single system image system, December 2004.
- **Louis Rilling,** Design of a fault tolerant data sharing service for cluster federations. November 2005.
- **Emmanuel Jeanvoine,** Resource discovery and allocation in cluster federations. started in October 2004.
- **Boris Daix,** Deployment in dynamic grids, started in January 2006.
- **Thomas Ropars,** High availability in hierarchical single system image systems. started in October 2006.
- **Jérôme Gallard,** Service migration in Grids, started in October 2007

- **Sylvain Jeuland,** Virtual Organization Management in a Grid operating system, started in October 2007

Organization of scientific events
- Co-chair of the BULL-IMAG-INRIA summer school on the construction of distributed operating systems (Autrans, August 93).
- 5th ACM SIGOPS european workshop on Models and Paradigms for Distributed Systems Structuring (Le Mont Saint Michel, September 92), member of the organization committee.
- Workshop ``Hardware and Software Architectures for Fault Tolerance'' (Le Mont Saint Michel, June 93), member of the organization committee.
- Franco-israeli workshop on distributed algorithms and systems (Saint-Malo, October 94), organizer.
- 16th ACM Symposium on Operating System Principles (SOSP) (Saint-Malo, October 97), treasurer.
- ACM International Conference on Supercomputing (ICS) (Saint-Malo, July 2004), chair of the organization committee.

Participation to program committees
- International Conference on Distributed Computing Systems (ICDCS-14) held in June1994.
- Workshop on Software Distributed Shared Memory (SDSM'2000) held in May 2000.
- International Workshop on Distributed Shared Memory on Clusters (DSM2001), organized in conjunction with the IEEE International Symposium on Cluster Computing and the Grid (CCGrid'2001) held in May 2001.
- International Workshop on Caching, Coherence and Consistency (WC3 '01), held in conjunction with ACM International Conference on Supercomputing in June 2001.
- International Workshop on Distributed Shared Memory on Clusters (DSM2002), organized in conjunction with IEEE International Symposium on Cluster Computing and the Grid (CCGrid'2002) to be held in May 2002 in Berlin (Germany).
- 5th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP) to be held in October 2002 in Beijing (China).

Grants and contracts
- **BULL**: Gothic contract (November 87- March 1990), contribution to the design and implementation of a prototype of an integrated fault tolerant distributed system.
- **ESPRIT II**: FASST (Fault tolerant Architecture with Stable Storage Technology) contract (February 91- September 94), co-responsible of the European project for INRIA. The objective was the design and implementation of a fault tolerant shared memory multiprocessor based on the stable storage technology. Partners were Polytechnics Institute of Madrid (Spain), Trinity College Dublin (Irland), University of Newcastle upon Tyne (UK), August Systems (UK), BULL UK (UK), ETRA (Spain), Stollmann (Germany).
- **AFIRST**: Franco-israeli cooperation (March 92-March 95),co-responsible for IRISA of this cooperation on distributed systems. Partners were BULL-IMAG, INRIA Rocquencourt and Hebrew University of Jerusalem.
- **DGA/DRET**: Aleth contract (March 94-January 97), co-responsible and principal investigator of this project which aimed at studying high availability of scalable shared memory multiprocessor architectures.
- **Région Bretagne**: Astrolab contract (December 95-June 97), responsible of this project in cooperation with OST company for implementing an experimental platform for distributed systems based on PCs running Chorus micro-kernel and interconnected by an ATM network.
- **GIE BULL-INRIA Dyade**: Astrolog contract (September 96 - September 98), principal investigator and responsible of this project in cooperation with ISM Business Unit of Bull. The goal was to study the impact of Internet technologies on BULL ISM/OpenMaster network management platform.

- **ESPRIT Best practice**: Agent-isme (Assessment of GEN-Technology – Usability and Integration for SMEs) contract (May 97-January 98), responsible for IRISA of this project aiming at designing an electronic commerce environment on the Web well-suited for SME. Partners were Cadtron (Germany), Concepto (Switzerland), FTK (Germany), IHK-GFL (Germany), Klotz GmbH (Germany), Siemens-Nixdorf (Germany), SPIN (Germany), Syndesis (Greece) et Simulog (France). My contribution related to mobile computing. The goal was to allow access to electronic commerce applications from a portable computer connected to Internet via a wireless network.
- **Arc en Ciel**: Franco-israeli cooperation (January –December 2000), responsible of this cooperation on the design of efficient algorithms and operating system mechanisms for high performance computing on clusters with the team of Prof. Amnon Barak at the Hebrew University of Jerusalem.
- **PRIAMM SAS Cube** (May 2000-April 2001), expert in cluster computing for the design of a light virtual reality system based on a cluster of PCs. Partners are centre Lavallois de Ressources Technologiques, Z-A, Barco-France and SIAMES INRIA project.
- **CRECO EDF** (December 2000-December 2003), responsible and principal investigator of this contract in cooperation with the modelling and information technologies department of the research and development division of Electricité de France (EDF). A PhD and a PostDoc grants are funded by EDF. Large realistic applications provided by EDF will be experimented on top of Gobelins prototype based on a cluster of PCs interconnected by Myrinet.
- **ALCATEL** (December 2000-June 2002), participation to this contract in cooperation with Alcatel and the REMAP INRIA project. We study the use of a recoverable DSM to support the execution of routing protocols on a cluster.
- **DGA (January 2003- November 2005)** responsible and principal investigator of this contract aiming at implemented a single system image operating system for high performance on clusters. Funding for two research engineers.
- **CRECO EDF (2004-2007)** responsible and principal investigator of this contract in cooperation with the modelling and information technologies department of the research and development division of Electricité de France (EDF). A PhD grant is funded by EDF on application management in a Grid operating system.
- **CRECO EDF (2006-2008)** responsible and principal investigator of this contract in cooperation with the modelling and information technologies department of the research and development division of Electricité de France (EDF). A PhD grant is funded by EDF on application deployment in dynamic grids.
- **XtreemOS European IT project (2006-2010),** project leader. The budget is around 30 millions euros, half funded by the European Commission, half funded by the 18 partners (from Europe and China).

Software
- **Gothic reliable communication system** (1988-1990), implementation in C language, in the Spart operating system on a network of BULL/SPS7 machines.
- **Simulator of scalable shared memory architectures** (1992-1994), implementation in C++ language on a Unix system, co-author: Alain Gefflaut.
- **Icare** (1994-1996), recoverable distributed shared memory system, implementation on top of Chorus micro-kernel on a network of PCs interconnected by an ATM network, co-author: Anne-Marie Kermarrec.
- **Magenta** (1996-1998), environment for executing fault tolerant mobile agents in wireless networks, implementation in Java language and native methods in C language, experimentation in a network of heterogeneous workstations and portable PCs communicating using GSM network, application of this technology to a network management platform, co-author: Akhil Sahai.
- **Highly available parallel single level store system** (since 1998), implementation in C language on top of Linux kernel, experimentation on a cluster of PCs interconnected by an SCI network, co-author : Renaud Lottiaux.
- **Kerrighed** (since 1999), single system image distributed operating system for a cluster of PCs, modules implemented in C language and extending Linux kernel, experimentation on a cluster of

40 PCs interconnected by various networks (Fast Ethernet, Gigabit Ethernet, Myrinet), principal developers: Renaud Lottiaux, Geoffroy Vallée, Pascal Gallard.

- **Vigne** (since 2002), distributed system for very large dynamic Grids, principal developers: Louis Rilling, Emmanuel Jeanvoine.