

# Laurent Bobelin

PhD in Computer Science



75 rue du petit chailloux  
18000 Bourges, France



+33 6 11 24 83 26



laurent.bobelin@gmail.com

## Currently

@ INSA CVL (Centre Val de Loire)  
since 2016

- Assistant Professor
- Head of SDS (Systems and Data Security) Team @ LIFO \*\*

### Research Topics:

- High Performance Computing (HPC) cybersecurity
- Distributed systems security

### Responsibilities in Education:

- Head of INSA CVL online education
- INSA CVL representative at INSA Group \* online education council

### Teaching:

- Software engineering, HPC, Cloud and network security to students
- Game-based learning to new INSA Group professors

### Other responsibilities :

- Assitant Professor Representative at INSA CVL Scientific
- Head of LIFO computing infrastructure at INSA CVL
- Responsible for INSA CVL/LIFO answers to calls for projects

## Languages

- English (fluent)
- Italian (average)
- Indonesian (basic)

## Misc

- Former INSA CVL's Work Council President (4 years)
- First aid training diploma

\* INSA Group is a network of engineering school graduating each year 12% of all engineers in France  
\*\*LIFO (Laboratoire d'Informatique Fondamentale d'Orléans, EA 4022) is INSA CVL's Computer Science lab

## Education and Experience

### Latest Diploma

2008 PhD in Computer Science Université de la Méditerranée, Luminy  
*Network topology discovery for European Computing Grid EGEE*

### Latest Positions

2017 – now Research and Education Engineer INSA Centre Val de Loire  
Research on Security, Big Data, HPC @ LIFO lab ; teaching computer science, head of online learning for the school

2016 – 2017 Post-doc (1 year) INSA Centre Val de Loire  
Research on disabled children data security, SDS @ LIFO

[Full list of positions in section 1](#)

## Academic Projects and Collaborations

### Latest Projects

2021 – 2024 MERIAVINO ERA-NET ICT AGRI-FOOD  
Project goal: address the problem of disease and yield estimation in vineyard using a multidisciplinary approach using drones and IoT.  
Role: Coordinator of cybersecurity WP

2019 – now METAS Regional funding  
Project goal: parallel optimization of Explosion Simulation, in partnership with PRISME laboratory and Nexter Group.  
Role: INSA CVL Project leader

[Selected list of projects and collaborations in section 2](#)

## Project Management

### Selected Management Activities

2019 - now MAMAS PHC and French Embassy funding  
Project goal: Massive Anonymous Mammography Analysis and Storage (MAMAS) aims at secure the storage and processing of mammographic data.  
Role: Project leader

2001 – 2004 DataGrid 5th PCRD.  
Project goal: Develop a grid middleware and set up a platform for the scientific community.  
Role: Leader of the Testbed and Software Testing Group ; quality expert in charge of the evaluation of the project operation.

[More information about my project management activities in section 3](#)

## Research

### Awards and other Achievements

Chinese Academy of Science (CAS) awarded me a President's International Fellowship Initiative Award, granting me a 6 month stay in China. during that stay, I have been officially granted the status of HPC expert for China.

### Latest Publications (selected)

- Fallacies and pitfalls in HPC and Big Data convergence, Laurent Bobelin, France-Japan-Germany trilateral workshop: Convergence of HPC and Data Science for Future Extreme Scale Intelligent Applications 6-8 Nov 2019 Tokyo (Japan)
- Toward a Formal Multiscale Architectural Framework for Emerging Properties Analysis in Systems of Systems, Laurent Bobelin, Khalil Drira, Cédric Eichler, Proceedings of IEEE – 13th System of Systems Engineering Conference, June 2018

[Full publications list in section 4](#)

# Laurent Bobelin

PhD in Computer Science



75 rue du petit chailloux  
18000 Bourges, France



+33 6 11 24 83 26



laurent.bobelin@gmail.com

## Overview

### Education

After successfully passed 4 years at university, I decided to apply to the joint diploma given by *Ecole Normale Supérieure de Lyon (ENS)*, *INSA Lyon* & *Université Claude Bernard Lyon 1* for my 5th year.

I received excellency grants to pass my 5th year in Lyon. After my graduation I've been proposed to continue to work within ENS as an engineer.

### Experience

Willing to discover the industry, I then joined a private company (CS later bought by British Telecom (BT)).

At BT I've worked mainly on research projects funded by Europe and the French ministry of research (see next section for details).

I was nevertheless frustrated by the lack of time I could spend on theoretical aspects of distributed computing ; I then decided to apply to a CIFRE grant to pass my PhD within my company and join the academic research after my PhD defense.

After several post-doc and non permanent position I'm holding now a permanent position mixing research and education at INSA Centre Val de Loire. In this position I have the opportunity to strengthen the educational aspects of my curriculum, being responsible for online education for my school and a member of INSA group online education council.

## 1 - Education and Experience

### Position List

- 2022 – now Assitant Professor INSA Centre Val de Loire  
• Head of System and Data Security Team @ LIFO
- 2017 – 2022 Research and Education Engineer INSA Centre Val de Loire  
• Research in High Performance Computing and cybersecurity  
• Assistant Professor representative at INSA CVL Scientific Council  
• Head of INSA CVL online education  
• INSA CVL representative at INSA Group online education council  
• Head of LIFO computing infrastructure at INSA CVL  
• Responsible for INSA CVL/LIFO answers to calls for projects
- 2016 – 2017 Post-doc (1 year) INSA Centre Val de Loire  
• Research on disabled children data security  
• Teaching Cloud to students
- 2016 Visiting Scientist Chinese Academy of Science CAS, Beijing  
President's International Fellowship Initiative Award  
• 6 month grant for visiting CAS  
• Research on Big Data systems scheduling algorithms  
• Visits of major computing infrastructures in Beijing area with the French HPC Expert's mission
- 2014 – 2015 Postdoctoral Researcher LIFAT lab, OC team, Tours  
• Big Data: Scheduling in Hadoop  
• FEDER Project  
• Industrial partners: Renault and Cyrès
- 2013 – 2014 Postdoctoral Researcher LIFO lab, SDS team, Bourges  
Software defined security for clouds
- 2010 – 2012 Assistant Professor (ATER) Polytech Grenoble, LIG lab, Mescal team, Grenoble  
Scalable simulation of HPC and large scale systems
- 2010 Researcher CNRS - Centre de Calcul IN2P3 Lyon  
Distributed platform modeling and random generation
- 2009 – 2010 Postdoctoral Researcher INRIA LIP lab, Graal team, ENS Lyon  
Automatic network discovery
- 2001 – 2008 Research and Development Engineer @ BT Aix-en-Provence National and European HPC projects  
HPC architect and consultant, quality expert, leadership of internal teams and partnership
- 2000 Software Engineer @ INRIA LIP lab, ReMAP team, ENS Lyon Software developer  
developed an XML-based search engine for video meta-data

### Diploma

- 2008 Ph.D in Computer Science Université de la Méditerranée, Luminy  
Network topology discovery for European Computing Grid EGEE  
Examination panel:  
• Emmanuel Jeannot, Chargé de recherche INRIA Grand Est, reviewer,  
• Ibrahima Sakho, Professeur à l'Université de Metz, reviewer,  
• Frédéric Desprez, Directeur de recherche à l'INRIA Rhône-Alpes, Committee president  
• Remi Morin, Professeur à l'Université de la Méditerranée,  
• Traian Muntean, Professeur à l'Université de la Méditerranée, PhD advisor,  
• François Touchard, Professeur à l'Université de la Méditerranée, Ph.D co-advisor
- 1999 Master in Computer Science UCBL, INSA and ENS Lyon  
High Performance Computing

# Laurent Bobelin

PhD in Computer Science



75 rue du petit chailloux  
18000 Bourges, France



+33 6 11 24 83 26



laurent.bobelin@gmail.com

## Overview

I am an actor since the writing of the proposal of most international projects I participate. The basic idea is to find funding in order to maintain and develop my research network abroad while addressing - societal or scientific - critical challenges.

### Outstanding Project Results

Out of the 12 national projects I participated, I am proud to have been the software architect of e-Toile project, which was one of the building blocks of the later GRID 5000 project.

Within the 10 European projects I have been involved in, 3 successive projects with CERN allowed us to design, build and deploy the computing infrastructure (both hardware and software) to process LHC data which is still in use in 2022.

### Educational Collaborations

I am one of the founding members of OpenINSA, a council dedicated to online education at INSA Group, and a member of its steering committee. It gathers the educational services of the school members of INSA Group.

We manage many different projects (more than 20 active projects in 2021). Project can be external or internal to the group - I am for example responsible for the risk management concerning online education for INSA group and for the game-based learning group. Example of external partners includes private companies like OpenClassrooms and universities like *Université Virtuelle du Mali*, *Université Virtuelle du Sénégal* and *Université Virtuelle de Tunis*, *Centre d'Excellence Africain CEA MITIC*.

## 2 - Academic Projects and Collaborations

### International Research Projects (selected)

- 2021 – 2024 **MERIAVINO** ERA-NET ICT AGRI-FOOD  
Project goal: address the problem of disease and yield estimation in vineyard using a multidisciplinary approach using drones and IoT.  
Role: Coordinator of cybersecurity WP
- 2019 – now **MAMAS** PHC and French Embassy funding  
Project goal: Massive Anonymous Mammography Analysis and Storage (MAMAS) aims at secure the storage and processing of mammographic data.  
Role: Project leader
- 2012 – 2015 **Seed4C: Secured Embedded Element for Cloud** Celtic-Plus project.  
Project goal: develop in-depth and end-to-end security architecture relying on existing security mechanisms.  
Role: Architect
- 2004 – 2008 **EGEE: Enabling Grids for E-science** 6th PCRD.  
Project goal: Develop a grid middleware and set up a platform in order to provide a production platform, mainly for CERN's LHC HEP experiments.  
Role: PhD within the framework of the project. Research oriented toward network tomography for bulk data transfers.
- 2001 – 2004 **DataGrid** 5th PCRD.  
Project goal: Develop a grid middleware and set up a platform for the scientific community.  
Role: Leader of the Testbed and Software Testing Group, quality expert in charge of the evaluation of the project operation.

### Educational Collaborations (selected)

- 2017 – now **OpenINSA** INSA Group  
Council dedicated to online education at INSA Group  
Founding member & steering committee member
- 2019 **Invited Lecturer** Bandung, Indonesia  
Location: Institut Teknologi Bandung (ITB, the oldest and first technology-oriented university in Indonesia)  
Lecture topic: cybersecurity and big data in the IoT context  
Paused because of covid-19 crisis.

### National Research Projects(selected)

- 2019 – now **METAS** Regional funding  
Project goal: parallel optimization of Explosion Simulation, in partnership with PRISME laboratory and Nexter Group.  
Role: INSA CVL Project leader
- 2015 – 2020 **CONNECT IO** ANR project.  
Project goal: develop Massive Online Open Courses ; in partnership with OpenClassroom.  
Mission: INSA CVL coordinator.
- 2001 – 2004 **e-Toile** RNTL  
Project goal: Develop a grid middleware and set up a platform in order to provide a national platform of grid computing dedicated to the scientific community.  
Role: Responsible of the state of the art working group, responsible for the scientific and technical development of the e-Toile core middleware

# Laurent Bobelin

PhD in Computer Science



75 rue du petit chailloux  
18000 Bourges, France



+33 6 11 24 83 26



laurent.bobelin@gmail.com

## Overview

Because of the intrapreneurship/per-project orientation of research in France, networking is mandatory to continue to work efficiently. The projects I lead relies on long terms relationships with some partners, adding new ones whenever it is possible.

Indeed building a network necessitates to attend and organize events while being always curious and open-minded. For example, I work now since 2 years on project METAS, with a partner I met at a general public dissemination event (*Fête de la Science*).

I'm writing - for me and my partners- a lot of proposal since I started working, for various amount of funding, consortium size and funder (local, national or European). In my current position, I am also in charge of helping young researchers of the lab: guide them to the good funder, refine their scientific projects, identify partners and help them writing their proposal. During the last 3 years, I participated to 12 project proposals (3 of them rejected, 9 accepted).

## 3 - Project Management

### Project Management and Leadership (selected)

2019 - now MAMAS PHC and French Embassy funding  
Starting this collaboration with a single partner in Indonesia, we obtained low funding that helped us to start a new ambitious activity and we grew a consortium on the broader topics of security applied to medical devices. With an industrial partner, we recently applied to a French funding program (AMI from BPI France), asking 9M€.

2001-2004 [DataGrid](#) 5th PCRD.  
Role: Leader of the Testbed and Software Testing Group, quality expert in charge of the evaluation of the project operation. The project involved more than 2000 contributors. I was in charge of measuring quality of software integration (defining and collecting metrics), coordination with platform operators at the technical level, evaluation of the platform operation. I was also the leader of the testbed and software testing group (≈ 20 European partners).

### Proposal Writing - Latest Accepted Proposal I Contributed

2020	MOSAIC Substructural Logics, 1M€	Marie Curie RISE
2020	MERIAVINO Agriculture and IoT, 1M€	ERA-NET ICT-AGRI-FOOD
2019	MAMAS Privacy and healthcare, 2K€	<i>Science et Impact</i>
2018	PRELAP Substructural Logics, 205K€	ANR
2018	MAMAS Privacy and healthcare, 10K€	PHC Campus France

### Latest Event Organized (selected)

2021	<i>Colloque Pédagogie et Formation</i> Co-organizer (virtual event)	≈ 200 attendees
2020	<i>Journée Informatique de la Région Centre (JIRC)</i> Co-organizer	≈ 50 attendees
2019	<i>Colloque Pédagogie et Formation</i> Host	≈ 150 attendees
2019	<i>1ères rencontres recherche du groupe INSA</i> Host	≈ 50 attendees
2018	<i>Journée High Performance Data Analytics</i> Host	≈ 40 attendees

### Risk Management

2020 – now I am responsible for the coordination of efforts of INSA Group to evaluate and mitigate risks involved by online education. This works implies to work closely with the different CIO of INSA group to implement solutions to mitigate existing risks

### Teaching Related to Project Management

2016 – now	Software engineering I teach students the basics of software engineering, Agile and Scrum, writing technical documents...	INSA CVL, 3rd year students
2010 – 2012	Specification and design I taught students the basics of technical documentation, how to write specifications, architecture documents, test plan	Université Grenoble Alpes, 4th year students

# Laurent Bobelin

PhD in Computer Science



75 rue du petit chailloux  
18000 Bourges, France



+33 6 11 24 83 26



laurent.bobelin@gmail.com

---

## 4 - Publication List

### Book Chapter

- MINTCar: A tool enabling multiple source multiple destination network tomography, Laurent Bobelin. In *Advancements in Distributed Computing and Internet Technologies: Trends and Issues*, August 2011

### International Conferences with Peer Review

- Toward a Formal Multiscale Architectural Framework for Emerging Properties Analysis in Systems of Systems, Laurent Bobelin, Khalil Drira, Cédric Eichler, *Proceedings of IEEE – 13th System of Systems Engineering Conference*, June 2018
- A Software Test Approach to Evaluate the Enforcement of a Workflow Engine, Laurent Bobelin, Christian Toinard, Tuan Hiep Tran, Stéphane Moinard, *Proceedings of the 2017 International Conference on Software Engineering Research and Practice SERP'17*, July 2017
- E-HandicapScale: an open and secure way to promote and improve diagnostics of disabled patients, Laurent Bobelin, Andrès Gil, Christian Toinard, *HIMS'17*, July 2017
- Shortest Processing Time First Algorithm for Hadoop, Laurent Bobelin, Patrick Martineau, Di Zhao, Haiwu He, *IEEE CSCloud 2016*, June 2016
- An autonomic Cloud management system for enforcing security and assurance properties, Laurent Bobelin, Aline Bousquet, Jeremy Briffaut, *Second Workshop on the Changing Landscape in HPC Security*, July 2015
- An advanced security-aware Cloud architecture, Laurent Bobelin, Aline Bousquet, Jeremy Briffaut, Eddy Caron, Jean-François Couturier, Arnaud Lefray, Jonathan Rouzaud-Cornabas et Christian Toinard, *IEEE HPCS 2014*, May 2014
- Scalable Multi-Purpose Network Representation for Large Scale Distributed System Simulation, Laurent Bobelin, Arnaud Legrand, David A. Gonzalez Marquez, Pierre Navarro, Quinson Martin, Frédéric Suter and Christophe Thiéry. *CCGrid 2012 — The 12th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing*, May 2012
- Synthesizing Generic Experimental Environments for Simulation, Martin Quinson, Bobelin, Frédéric Suter *IEEE Fifth International Conference on P2P, Parallel, Grid, Cloud and Internet Computing (2010)*, November 2010
- MINTCar: A tool for multiple source multiple destination network tomography, Laurent Bobelin. *2nd IEEE International Workshop on Internet and Distributed Computing Systems (IDCS'09)* December 2009
- Algorithms for network topology discovery using end-to-end measurements, Laurent Bobelin, Traian Muntean, In *proceedings of the 7th International Symposium on Parallel and Distributed Computing (ISPDC 2008)*, July 2008
- Metric induced network poset (MINP): a model of the network from an application point of view Laurent Bobelin, Traian Muntean, *First International Conference on Networks for Grid Applications (GridNets), MetroGrid Workshop*, October 2007

# Laurent Bobelin

PhD in Computer Science



75 rue du petit chailloux  
18000 Bourges, France



+33 6 11 24 83 26



laurent.bobelin@gmail.com

---

## National Conferences with Peer Review

- Topologie réseau induite par la métrique (MINT) dans le cas d'échanges multiples sources, multiples destinations Laurent Bobelin, Traian Muntean, In proceedings of the 17eme Rencontres francophones du Parallélisme (RenPar'17), October 2006

## Other Conferences, Talks and Posters

- Exécution parallèle de code de combustion à l'aide du paradigme master/worker, Hakim Oueslati Laurent Bobelin, Mame William-Louis, Journées Informatiques de la Région Centre, JIRC 2021
- Retour d'expérience sur la pédagogie par le jeu, Laurent Bobelin, Colloque Pédagogie et Formation, 2021
- Parallélisation et optimisation de code de combustion, Jonathan Vanderveken, Laurent Bobelin, Mame William-Louis, Journée Cascimodot, 2020
- Anonymat et imagerie médicale, Agung Alfiansyah, Laurent Bobelin, Journées Informatiques de la Région Centre, JIRC 2018
- Aide à la planification de la prise en charge d'enfants handicapés moteurs, Laurent Bobelin, Killian Durand, Nadège Fichot, Adrien Jousse, Yannick Kergosien et al. Journées Informatiques de la Région Centre, JIRC 2017
- Toward HPC/Big Data convergence : the YML+Hadoop 2.x opportunity, Laurent Bobelin, Institute of High Energy Physics, Beijing, June 2016
- Hadoop 2.x scheduling and its evolution, Laurent Bobelin, CSTNET, Beijing, April 2016
- An Autonomic Cloud Management System for Enforcing Security and Assurance Properties, Laurent Bobelin, CAS Beijing, February 2016
- Modeling network for File Transfer Service : a network view from the application side, Laurent Bobelin, 2nd EGEE User Forum, Manchester, may 2007
- Multiple sources, multiple destinations metric induced network topology discovery : a graph theory approach, Laurent Bobelin, Traian Muntean, in proceedings of IEEE ICCP 2006, Poster Session, August 2006

## Research Reports

- Modeling remote access in Hadoop MapReduce, Laurent Bobelin, RR LI 312 (2015)
- Ordonnancement dans Hadoop et spécificités MapReduce, Laurent Bobelin, RR LI 311 (2015)
- Towards Scalable, Accurate, and Usable Simulations of Distributed Applications and Systems, Beaumont O., Bobelin L., Casanova H., Clauss P.-N., Donasolo B., EyraudDubois L., Genaud S., Hunold S., Legrand A., Quinson M. et al, RR-7761 (2011)
- Scalable Multi-Purpose Network Representation for Large Scale Distributed System Simulation, Bobelin L., Legrand A., David Alejandro González M., Navarro P., Quinson M., Suter F., Thierry C., RR-7829 (2011)
- Scheduling and data redistribution in mixed parallelism programs, Laurent Bobelin, Frédéric Desprez et Cyril Randriamaro. Research Report, LIP, ENS Lyon, France, 2000.

## Invited Talk

- Fallacies and pitfalls in HPC and Big Data convergence, France-Japan-Germany trilateral workshop: Convergence of HPC and Data Science for Future Extreme Scale Intelligent Applications, November 2019