

# Parallel Computing and optimisation

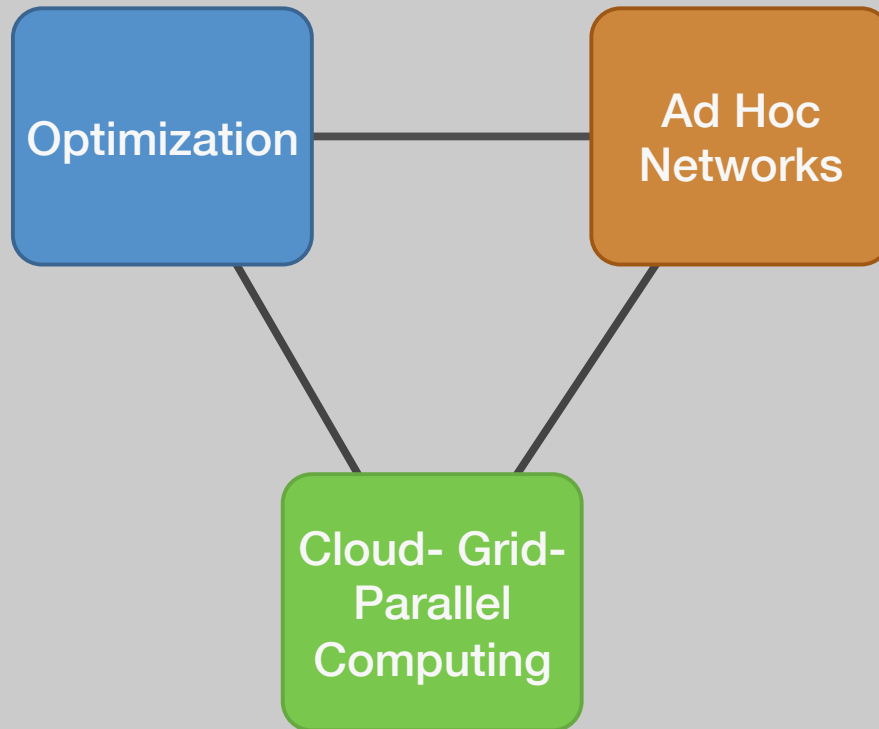
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# University structures

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- 3 faculties
  - 5 research units within FSCT
    - CSC
  - Teaching
    - Bachelor, Master(s), PhD
- 2 interdisciplinary centers
  - LCSB
  - SnT
- Doctoral school CSCE
  - 20 ECTS
  - CET

# Pascal Bouvry's Team



- Application Domains  
⇒ UL Priorities
  - Security, Reliability and Trust
    - Reliable protocols and Scheduling
  - Systems Biomedicine
  - Sustainability Development
    - Energy-efficient Data-Centers
- Man power
  - 1 prof
  - 8 Research fellows with PhD
  - 13 PhD students
- Computing facilities
  - 20 TFlops
  - 400 TB storage

# Project Portfolio

- GreenIT
  - 2010-2012- FNR Core Program 430 K - <http://greenit.gforge.uni.lu>
- SES – Satellite payload reconfiguration
  - 2010-2013
- Evoperf
  - 2011-2014 – UL Project –Performance guaranteed evolutionary computing for Bioinformatics
- DPM-HPC
  - 2012-2015 – UL Tandem project with Prof Bernhard Peters – Parallel code for Discrete Particle Methods
- Green@Cloud
  - 2012-2015 – FNR INTER – CNRS Lille with Prof EG Talbi – Green IaaS
- Supernode 2
  - 2012-2014 – MECCE - MixVoIP
- Eco-cloud
  - 2013-2015 – FNR CORE – PI Dzmityr Kliazowicz – Green Coms for Cloudcomputing



# International Project involvement

- [Grid'5000](#)
  - Experimental grid (built between France, Luxembourg, Brazil, Netherlands and Japan) for research in large-scale parallel and distributed systems;
- [CoreGRID Network of Excellence](#)
  - the European research network on Foundations, Software Infrastructures and Applications for large scale distributed, GRID and Peer-to-Peer Technologies;
- COST ICT Actions
  - IC0804: Energy efficiency in large scale distributed systems.
  - IC0702: Combining Soft Computing Techniques and Statistical Methods to Improve Data Analysis Solutions
- [ERCIM 2008 - present](#)
- IEEE
  - [Steering IEEE TCSC GreenIT](#)
  - [Vice-Chairman IEEE CIS Cloud computing](#)



# What to do?

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- Focus on doing scientifically interesting things with good people
- Quality vs Quantity – quality primes
  - Focus on top journals in the related fields
  - Initiate this by top conferences in the related fields
  - Networking by participation to international projects and conferences/workshops
  - Books are nice to have
- How to do?
  - Hard working
  - Learning vocabulary and usage of the related publications/communities
- Advise for PhD students
  - Be able to tell people what you do in a couple of sentences (scientific challenge)
  - Be able to explain the industry/society impact of your work
  - Be able to spot the key mathematical theories that are useful
  - Know your contribution



# Apart from science

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- Yes you can help for teaching duties
- Yes you can share admin tasks



# Opportunities

- Existing priorities @ country level
  - Service science?/Security/Telecom/Multimedia
  - Bio - LCSB
  - Green Mobility
  - Logistics
- Emerging fields at UL level (next 4 year plan)
  - Material science
  - Entrepreneurship
  - Medicine
- Joint opportunity for us:
  - Complexity and computational sciences / HPC – virtual competence center



# Project submissions to come

- ANR Blanche
  - ARM/GPU : LIG Grenoble, Allogrille INRIA Nancy
  - Drones: LIH
- CORE 2013 calls
  - VM Security
  - Smart cities
- POLLUX
  - HPC/Green : Poznan
- Other
  - Moscow State University
- FP7
  - **Cloud-based Support for Situational Awareness**
  - Vanets
- COST: Needs to parse new projects to join

# Coming soon

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- Nguyen Anh Quan
  - PhD student on Green@Cloud project

