# Course organisation

MPRI 2–6: Abstract Interpretation,
application to verification and static analysis

Antoine Miné

year 2015–2016

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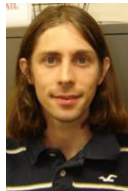16 September 2015

# Course topics

- **foundation** of abstract interpretation
  - fixpoint program semantics
  - order and approximation theory
  - hierarchy of semantics

- **bricks** of static analyzers
  - numeric abstract domains (non-relational, relational, specific)
  - symbolic abstract domains
  - memory abstract domains (pointers, shape analysis)
  - domain combiners (reduced products, partitioning)

- domain-specific **static analyses**
  - analysis of concurrent programs
  - analysis of mobile and distributed systems
  - analysis of biological systems
  - industrial application: analysis of embedded programs

# Teaching team



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## Syllabus and exams

Visit regularly:

https:
//www-apr.lip6.fr/~mine/enseignement/mpri/2015-2016/

- latest information on course dates
- course slides (preliminary, and consolidated after course)
- course assignments
- M2 internship proposals (updated regularly)

**Exams:**
- written exam on 2 December 2015
- oral exam 9 March 2016? (to be confirmed)
  (read a scientific article, present it, answer questions)

## Course assignments

On the web page, **highly recommended** homeworks
after each course:

- an exercise: proof of theorem, former exam, etc.
- a reading assignment: an article related to the course
- an experiment: using a tool

Not evaluated by the teacher, gives no credit.
The solution of the exercises is also given.

### **Goal:**

- self-evaluation after each course
- preparation for the exam

Additional material:

- previous exams
- course bibliography (in the slides; reading is not mandatory)