Seminar: Advanced Software Engineering

Special Focus: Cloud Computing

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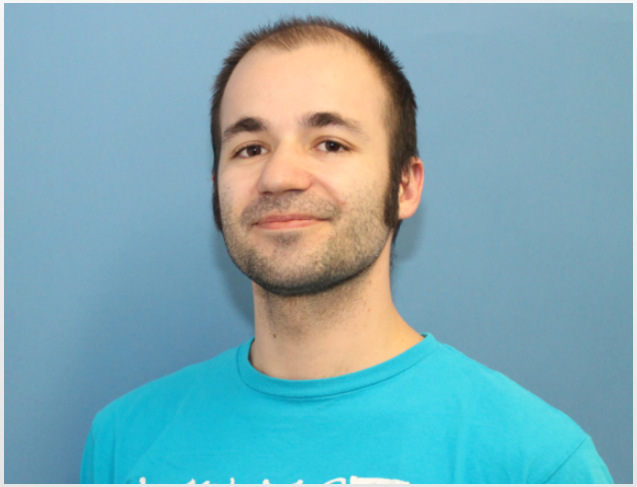
s.e.a.l.
software evolution & architecture lab

Lecturers



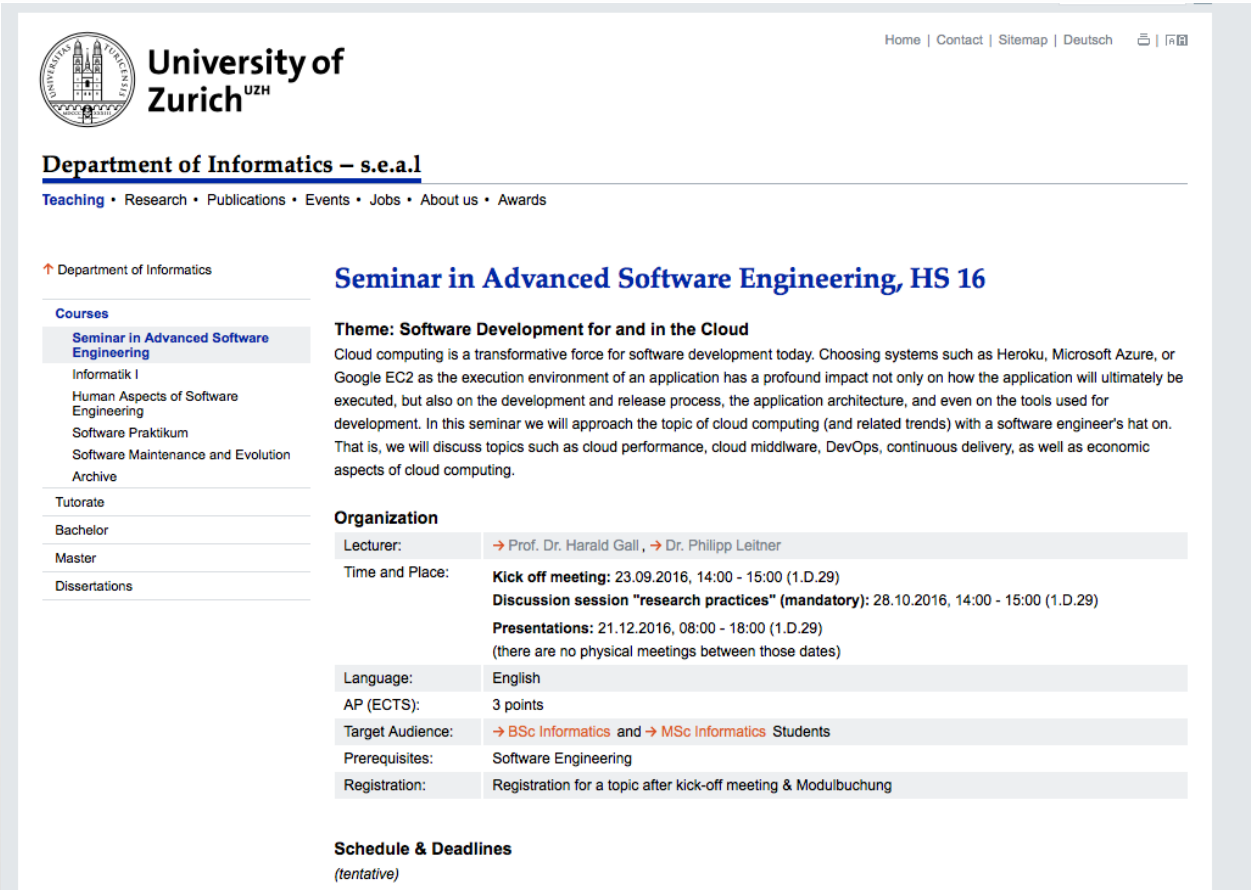
What's a seminar?

Scientific, literature-based work

Learning goals:

- *Finding* and reading good scientific literature
- Academic writing (how to summarize main points, how to cite literature, etc.)
- Giving academic presentations

All Info



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Seminar in Advanced Software Engineering, HS 16

Theme: Software Development for and in the Cloud

Cloud computing is a transformative force for software development today. Choosing systems such as Heroku, Microsoft Azure, or Google EC2 as the execution environment of an application has a profound impact not only on how the application will ultimately be executed, but also on the development and release process, the application architecture, and even on the tools used for development. In this seminar we will approach the topic of cloud computing (and related trends) with a software engineer's hat on. That is, we will discuss topics such as cloud performance, cloud middlware, DevOps, continuous delivery, as well as economic aspects of cloud computing.

Organization

Lecturer:	→ Prof. Dr. Harald Gall , → Dr. Philipp Leitner
Time and Place:	**Kick off meeting:** 23.09.2016, 14:00 - 15:00 (1.D.29) **Discussion session "research practices" (mandatory):** 28.10.2016, 14:00 - 15:00 (1.D.29) **Presentations:** 21.12.2016, 08:00 - 18:00 (1.D.29) (there are no physical meetings between those dates)
Language:	English
AP (ECTS):	3 points
Target Audience:	→ BSc Informatics and → MSc Informatics Students
Prerequisites:	Software Engineering
Registration:	Registration for a topic after kick-off meeting & Modulbuchung

Schedule & Deadlines

(tentative)

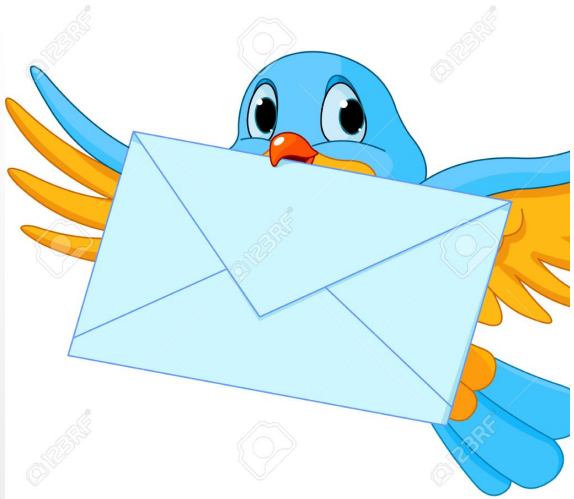
http://www.ifi.uzh.ch/seal/teaching/courses/semadvse.html

General Process

1. Students select a topic (deadline September 30th)
2. FAQ session "research practices" (October 28th)
3. Students write a class paper (deadline November 11th)
4. Reviews (deadline November 20th)
5. Students revise paper and prepare a presentation
6. Final submission (December 18th)
7. Final presentations (December 21th)

Topic Selection

- I will present the options today
- You send me **until this next week** your choices of topic
  - Send me a list of 5 topics in order of preference
  - leitner@ifi.uzh.ch
  - If you don't send me a choice, you are not in the seminar
- I will do some matchmaking and send you concrete topics the week afterwards



Paper

- Length: 12 - 15 pages
- Written in Latex (or, *if you really want*, in Word) using the LNCS style (link on Web page)
- English
- Needs to cite academic literature (7 - 10, typically)

Submission

We use Easychair to submit papers and reviews

https://easychair.org/conferences/?conf=semase16

(you'll need an account, it's free)

Reviews

Every paper will be reviewed by a lecturer and 2 -3 students.

Reviews should comment on:

- Technical quality
- Logical structure
- Presentation
- Style
- References

Each category should be graded on an A to D scale:

- A: An excellent work.
- B: A good work with just a couple of small weaknesses.
- C: An average work with clear weaknesses.
- D: Insufficient work with many substantial weaknesses.

Reviews are to be submitted via Easychair as well.

Presentations

All presentations on a single day

Attendance is mandatory!

Per student:

- 20 minutes presentation
- 10 minutes discussion

Usage of Powerpoint / Keynote / Beamer is suggested.

(Prezi not so much)

Grading

Final grade will be given out after all reports are submitted.

Based on (in order of importance):

- Quality of class paper
- Quality of presentation
- Quality of reviews (the ones you write, *not* the ones you receive)
- Participation during the presentations (asking questions etc.)

Not following rules of academic honesty == auto-fail

Topics

Topic 1: Cloud Adoption and Usage
How and why are developers and companies choosing to use (or not use) cloud applications for provisioning applications? What does this decision impact, and how?

Topic 2: Cloud Benchmarking
How can developers (and researchers) evaluate the performance of IaaS cloud services? What have been the main observations of existing cloud benchmarking studies?

Topic 3: Selecting the Right Cloud Service(s)
How can developers select the best cloud service, or combination of cloud services, for their applications? What are the primary factors that need to be taken into account?

Topic 4: Pricing
How do cloud providers determine the price of instances or other types of cloud resources? Is the price always fixed? What are the main factors that cloud users are priced on?

Topic 5: Security and Privacy
What are the main challenges related to security and privacy in the context of cloud computing? What specific security and privacy challenges does cloud computing raise, and what are known successful attacks?

Topics

Topic 6: Modelling Cloud Applications

What standards and other proposals are there for modelling the structure and cloud deployment of applications? What do these proposals have in common, and how do they differ?

Topic 7: Client-Side Middleware

What client-side libraries, frameworks, and middleware systems are there for supporting the development of cloud applications? What functionality do these systems typically provide, and how do they differ?

Topic 8: Platforms

What server-side frameworks, and middleware systems are there for deploying cloud applications? What functionality do these systems typically provide, and how do they differ?

Topic 9: Developer Performance Awareness

How can cloud developers monitor the performance of their applications? What are important metrics to keep track of?

Topic 10: Releasing Changes Fast(er)

How do faster releases, as often associated to cloud computing, impact the quality of software?

how
which
why
when
what
where
who