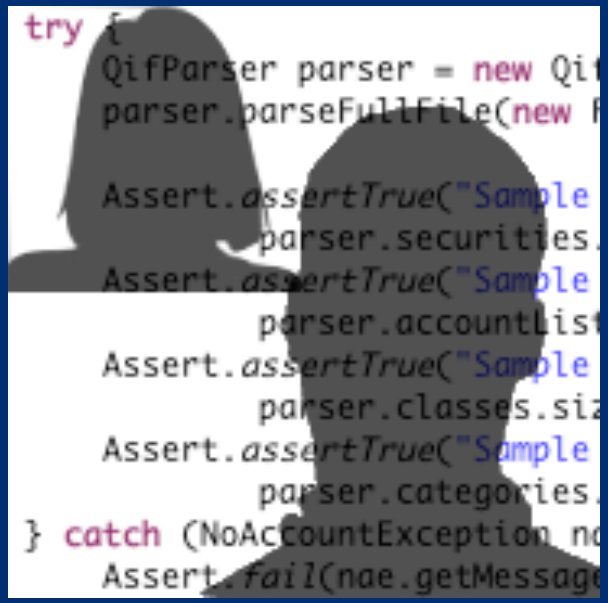

Human Aspects of Software Engineering

Manuela Züger / Thomas Fritz

Course Objectives

- Deepen and broaden your knowledge of Software Engineering research by ***reading, reflecting and discussing*** current and classic literature
- Experience a glimpse of Software Engineering research through a research ***project*** work
- Focus on ***research***

Non-Traditional Course Format

Outside of class

- 4 weeks: 3 to 5 assigned papers per week

  read them, think about them, write a short response paper

- Small Research Project

  find a research question, write and present a proposal, do it, write it up and present it

In class

- 4 (3 + 1) weeks: Moderation and discussion

  student moderator leads, everyone else participates in discussion

- Other times: Weekly Meetings, Presentation

No exams, however, projects take lots of time! [6 ECTS]

Tentative Schedule

Sept 15th: Course Overview

Sept 22nd: Empirical Research & Information Needs
(Papers & Discussion P&D)

Sept 29th: Biometrics and Emotions in SE (P&D)

Oct 6th: Interruptions and Machine Learning (P&D)

Oct 13th-17th: Proposal Discussions (One-on-one Meetings)
→ sign up early by email to fritz@ifi.uzh.ch with 3 preferences of 30mins slots for Tue / Wed / Thu

Oct 20th: Proposal Presentations in Class (presentation)

Tentative Schedule (2)

Oct 27th:	Meetings
Nov 3rd:	Eye-Tracking in SE (Papers & Discussion P&D)
Nov 10th – Dec 5th:	Meetings
Dec 8th:	Project Report Due
Dec 18th/19th:	Project Presentations & PC Meeting

Quick Voting:
1) 18th morning
2) 18th afternoon
3) 19th morning
4) 19th afternoon

Focus on Research and the Process

The ***process*** is important

- Identifying interesting research questions (RQs)
- determining how to investigate them and running analysis
- presenting and writing up results

Research is mostly an ***iterative*** process

- Identifying relevant RQs is difficult and discussing and then revising them is important and part of research

Focus of Course

- Studies of programmers
- Data on programmers: interactions, biometric, observation logs …
- Individual development and development activities (rather than processes, planning, requirements, ..)

Topics

- Empirical Research and Information Needs
- Biometrics and Emotions in SE
- Interruptions and Machine Learning
- Eye-Tracking in SE

NOTES (for next time)

- Next time: provide some examples so it becomes clearer to students
- Make sure to state that the “process” is important, i.e. getting to an interesting project
- Have a proposal presentation so that people see what others are doing

Grading

- Readings, including moderation, class participation and 3 response papers [25%]
- Project, including continuous progress, meetings, write up and presentation [55%]
- Written critique (review) of one paper [10%]
- Peer evaluation of two project reports [10%]

Response Papers

- Encouragement to read and reflect

  Class discussions work better if everyone has read and thought about the paper

- At most one to two pages per class

- **NOT a summary**. Think of it this way

  If I asked you what you thought about a movie you recently went to, you wouldn't just summarize it

- Grading based on "thoughtfulness"

- Due by **8pm** on Sunday before class

  Submit on: **OLAT**

Response Papers

- Questions of interest
  - What did you think about it and what did you find important or interesting?
  - What are main contributions of the paper?
  - What are strengths or weaknesses of the paper/research?
  - What are five questions you have about it?
  - What could be improved?
  - How could you imagine extending the work?
  - Do you agree or disagree with the findings?
  - …
- Express your perspective, ***address all readings*** and ***draw connections between readings*** when possible
- Example provided on web site!

Discussions

- Discuss the research:

  which problem are they trying to address, how are they tackling the problem, how do they evaluate their approach, …

- Share your opinions, ideas and thoughts
- Ask questions about the work
- See what others thought
- Listen and speak actively
- Look for contributions not just flaws in reading

Written Critique of a paper

- Research communities rely on peer reviews of results, if you want to be a researcher you need to learn about critiquing research papers
- Paper review will also help you to learn what is important when you write up your own work
- Templates will be provided (as well as example)

  Summary, what are its strengths, what are the weaknesses

  (realize that the authors would usually read it, so be constructive)

Leading Discussions

- For about 2 papers (**depends** on class size)
- Prepare for discussion
  - Prepare brief introduction (**less** than 3 minutes)
  - Provide additional background on subject
  - Prepare interesting and challenging points and questions for discussion
  - Think about overall structure, how to make it interactive and how to keep discussion going
- Hand in a brief (one paragraph) description of your plan
- Sign-up at the end of **THIS** lecture

Moderation

- Available time approx. 20 to 30mins (315min / # students); keep time in mind
- Introduce and provide background (only 2 to **3mins max**)
- Moderate an interactive discussion and include other student's perspectives and ideas
- Try to involve all participants
- Give impulses for discussion
- If an interesting topic comes up, be flexible about veering from your discussion plan
- Be respectful

Research Project – Empirical Analysis

- Identify a real problem developers face / investigate specific aspect of SE ***in context of provided data sets***
- Read related work and determine your niche
- Identify relevant/interesting research question
- Determine how to address the research question
- Run analysis
- Write up results in a scientific manner

Research Project – Empirical Analysis (2)

- Each project accompanied by a paper (max. 5 or 10 pages)
- Individual or in groups (up to 2 people, depending on class size)
- One page project proposal *draft* due on **October 10th**
- Project proposal presentation
- Final one- to two-page proposal due on **October 20th**
- Written report due on **December 8th**
- Project presentation

Research Project – Empirical Analysis (3)

- Project report: ACM paper format
- You will have your project approved by Thomas Fritz
- One-on-one meetings shortly before and after project proposal is due
- Continuous short progress meetings:
  - discuss progress, next steps, open questions, keep on track …
  - take advantage of them, i.e. prepare and ask!
  - 10 to 20 minutes via skype/gmail hangout

Research Project – Empirical Analysis (3)

- Multiple data sets on biometric data in SE
  - Eye-tracking, EDA, EEG, observations, interaction history,…
- Each will be introduced with some related work

Peer Evaluations

- Assess projects like a program committee
  - Everyone will read and review two project reports
  - Reviews are organized via OLAT
- Hand in review (will also be sent to authors)
- Program committee meeting in the last class
  - up to you whether we ‘accept’ papers
  - acceptance has no bearing on grade

The professor and the TAs

- We’re here to help
- Talk to us if you wand feedback or need help
- Talk to us if you do not find a topic or want to discuss your idea
- In class, we’re here to discuss

Team

- Manuela Züger (PhD student working on …)
- Thomas Fritz (fritz@ifi.uzh.ch)
- Katja Kevic (kevic@ifi.uzh.ch): main TA
- Sebastian Müller

My research interests…

Introduce yourself!

What would you like to learn about?

Any topics you are missing in the list?

To Dos

- Choose 2 papers you would like to present

  Sign up NOW!!!

- Start thinking about projects as soon as possible: what are you interested in?

- Register on OLAT

Next week

- Four papers on Empirical Research and Information Needs
  - **Developer's Code Context Models for Change Tasks,** Fritz et al. FSE'14.
  - **Information Needs in Collocated Software Development Teams,** Ko et al. ICSE'07.
  - **What makes good research in software engineering?**, JSTTT'02.
  - **Preliminary guidelines for empirical research in software engineering,** Kitchenham et al. TSE'02.
- Read and write short (1-2 page) response paper
- Submit on OLAT (course: HS 14 Human Aspects of Software Engineering)

More Information

- See website:

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

- Contact:
  - Thomas Fritz fritz@ifi.uzh.ch
  - Katja Kevic kevic@ifi.uzh.ch