WELCOME!!

Sixth International Workshop on Managing Technical Debt
September 30, 2014
Co-located with ICSME 2014
Victoria, BC, Canada
Our Purpose

- Bring together practitioners and researchers
- Bring together researchers from different sub-disciplines
- Discuss and define issues related to technical debt
- Discuss how technical debt can be studied
- Share emerging practices used in software development organizations
- Share emerging research results
What today will look like...

- 9:30-10:30 Two full papers
- 10:30-11 Break
- 11-12 Two full papers
- 12-12:30 Discussion
- 12:30-1:30 Lunch
- 1:30-3:30 Short and industry papers
- 3:30-4 Break
- 4-5:30 Open discussion and wrap-up
Tonight’s dinner

O Thank you, Philippe!!
The Discussant Model

- Paper presentations are **SHORT**
- Discussants should be prepared to
  - Comment on the paper
  - Lead Q&A and discussion
- Full papers
  - $15 + 5 + 10 = 30$ minutes
- Short and industry papers
  - $10 + 3 + 7 = 20$ minutes
Discussants and Presenters

- To minimize laptop switching delays, please send me your slides before the morning break.
- Discussants and presenters in first session excused ;-)  
- cseaman@umbc.edu
- We’ll use my laptop for all presentations
So what are we talking about?

- **Technical Debt**
  - A design or construction approach that's expedient in the short term but that creates a technical context in which the same work will cost more to do later than it would cost to do now (including increased cost over time).
  - Quick and dirty work resulting in immature software artifacts
  - Decisions made for short-term expediency that have an associated long-term cost
Technical Debt is the gap between:

- Making a change perfectly
  - Preserving architectural design
  - Employing good programming practices and standards
  - Updating the documentation
  - Testing thoroughly
- And making the change work
  - As quickly as possible
  - With as few resources as possible
What does TD look like?

- Architectural violations
- Code smells
- Missing or out of date documentation
- Really old test cases
- Quality measures out of bounds
- Grime
- Out of date infrastructure
- Many different types [Thiago, Jens]
TD Research Questions

- How do you find technical debt?
  - TD Identification

- How can you tell if an instance of debt is going to have an impact?
  - TD Quantification/Estimation/Measurement

- How do you make decisions about TD?
  - When do you decide to incur TD?
  - When do you decide to pay off TD?
TD Identification

- Finding good indicators
  - Tool support, intuitively appealing
  - [Antonio, Maurício]

- Finding meaningful indicators
  - Correlated with maintenance outcomes
  - Can be used for prediction
  - [Clem]

- Finding actionable indicators
  - Causal relationships with maintenance outcomes
  - Can be used for improvement
TD Measurement

- Principal – how much will it cost to eliminate this debt
  - E.g., Refactoring cost
- Interest – cost of not eliminating the debt
  - Increased cost of fixing it later
  - Increased cost of modifying affected modules
  - [Larry, Vallary]
- Interest probability, or impact – what’s the likelihood that this debt will actually cause problems?
  - Probability the affected modules will be modified
TD Management

- Decision making
  - Starting to look at decision models from the financial domain
- Release planning [Jason]
- Integration into project management
- Agile processes [Johannes]
Your job today...

- Researchers
  - Learn how your research agenda can be aligned to create synergy with other researchers
  - Make sure your research is addressing real problems

- Practitioners
  - Find ways to facilitate research on real projects
  - Share your experiences, and critique what researchers are proposing
Questions?

- Without further ado...

- First up: The Correspondence between Software Quality Models and Technical Debt Estimation Approaches
  - Presenter: Clem Izurieta
  - Discussant: Johannes Holvitie