



Welcome to



1<sup>st</sup> Workshop on

Assessment of Contemporary Modularization Techniques

**Alessandro Garcia**  
**Elisa Baniassad**  
**Cristina Videira Lopes**  
**Christa Schwanninger**  
**Jianjun Zhao**

(Lancaster University, UK)  
(The Chinese University of Hong Kong, China)  
(University of California at Irvine, USA)  
(Siemens AG, Germany)  
(Shanghai Jiao Tong University, China)

[www.comp.lancs.ac.uk/computing/ACoM.07/](http://www.comp.lancs.ac.uk/computing/ACoM.07/)



# Preliminaries

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- Workshop Goals
- Submissions and Workshop Participants
- Program
  - Paper Presentations
  - Discussions
  - Discussion Groups



# Effective Assessment of...

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- ... emerging modularization techniques is fundamental
  - a better understanding of their real benefits and drawbacks when compared to conventional development techniques
  - support satisfaction of qualities across the software lifecycle
  - their effective transfer to mainstream software development
- Proper assessment requires, for instance:
  - definition of appropriate (specialized) assessment mechanisms
  - appropriate design of empirical studies
- Is the state-of-the-art prepared to support effective assessment of contemporary modularization techniques?



# Workshop Goals

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- Discuss proper assessment mechanisms for contemporary modularization techniques
  - to what extent...
    - ... can we rely on conventional techniques?
    - ... should we invent new assessment techniques?
- Understand better the benefits and drawbacks of contemporary modularization techniques
  - E.g. studies comparing non-AO vs. AO mechanisms and abstractions
  - ... across the software lifecycle



# ACoM and ASAT



ACoM.07

@ ICSE 2007

*Assessment of Contemporary  
Modularization Techniques*

- Short and long position papers
- Formal program committee
- Assignment of discussants
- Shorter presentations
  - focus on discussion groups
- Start with a small group

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ASAT.07

@ AOSD 2007

*Assessment of Aspect-Oriented  
Technologies*

- Short position statements
- No formal program committee
- Feedback in the workshop day
  - assignment of discussants
- Start with a small group



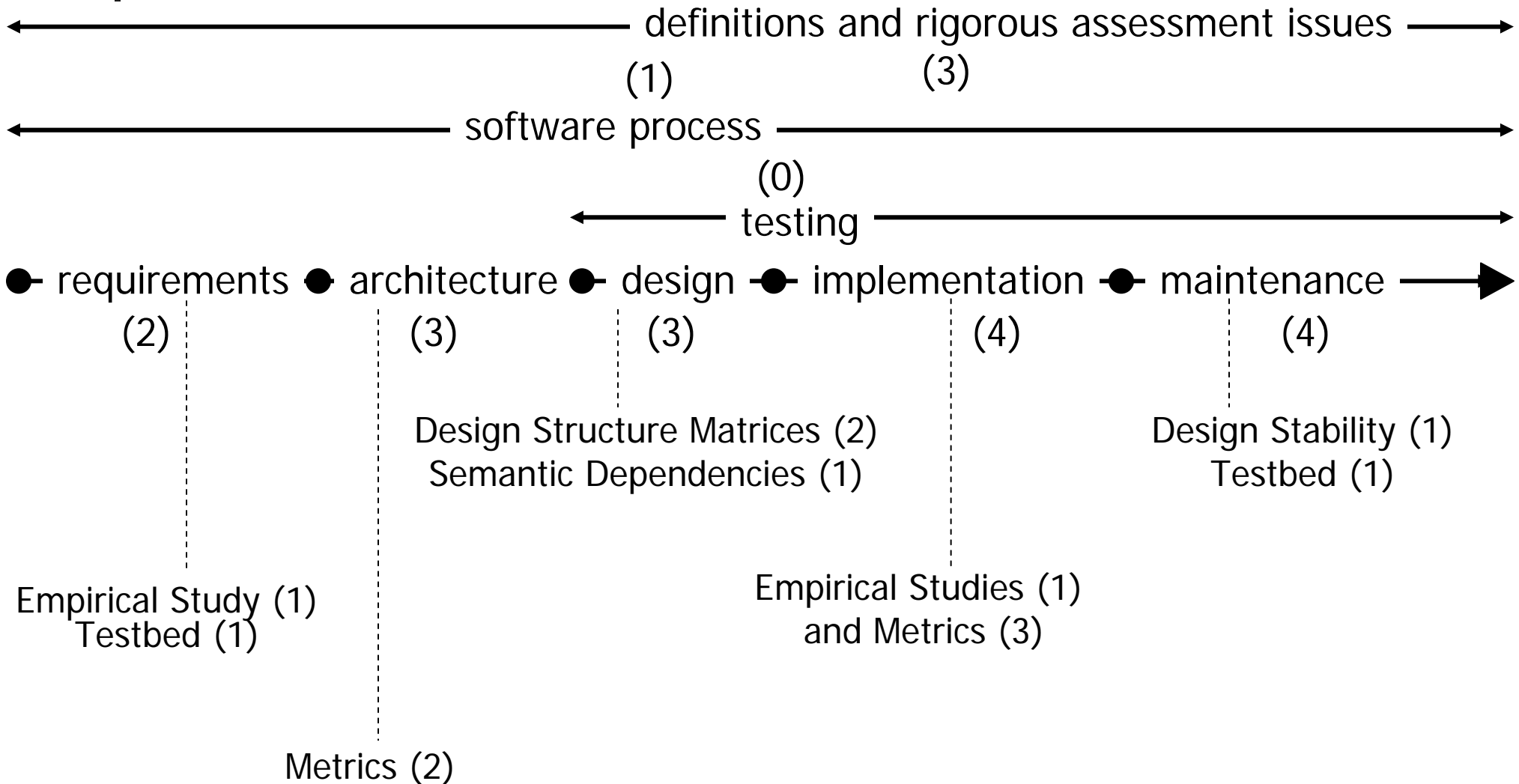
# Submissions to ASAT & ACoM

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- Total: 23 submissions
  - **6** accepted for ASAT
  - **11** accepted for ACoM
- Submissions from...
  - North America: Canada, **USA (6)**
  - Europe: **UK (4)**, Belgium, Ireland, Germany, The Netherlands, Spain
  - South America: Brazil
  - Oceania: New Zealand
  - Asia: India



# Papers – Areas of Interest





# Predominant Topics

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- Empirical Studies (4)
  - Aspect-Oriented Design vs. Component-Oriented Design
  - Collaboration Languages vs. Aspect Languages
  - AORE Approaches
  - Rigorous Assessment Issues
- Metrics
  - Validation (2)
  - Concern Measures (3)
  - Coupling Measures (3)
  - ... for AO Product Lines (1)
  - ... for Module Reusability (1)
- Value of Aspects in System Maintenance/Evolution (4)



# Program Committee

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- Mehmet Aksit, University of Twente, The Netherlands
- James Bieman, Colorado State University, USA
- Paulo Borba, UFPE, Brazil
- Gerardo Canfora, University of Sannio, Italy
- Christina Chavez, UFBA, Brazil
- Yvonne Coady, University of Victoria, Canada
- Robert France, Colorado State University, USA
- Holger Giese, University of Paderborn, Germany
- Ian Gorton, Pacific Northwest National Laboratory, Australia
- Rachel Harrison, Stratton Edge Consulting, UK
- Arno Jacobsen, University of Toronto, Canada
- Mira Mezini, T.U. Darmstadt, Germany
- Awais Rashid, Lancaster University, UK
- Peri Tarr, IBM Watson Research Center, USA
- Tom Tourwe, CWI, The Netherlands
- Robert Walker, University of Calgary, Canada

# Organizers



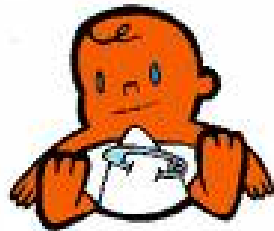
Jianjun Zhao  
China



Crista Lopes  
USA



Elisa Baniassad  
China



Christa Schwanninger  
Germany





# Paper presentations

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- Short position papers
  - 10 min (presentation) + 5 min (Q&As)
- Longer position papers
  - 15 min (presentation) + 5 min (Q&As)
- Each paper has a discussant
- Each session has a chair
  - **Robert Walker, University of Calgary, Canada**
  - **George Heineman, Worcester Polytechnic Institute, USA**
  - **Phil Greenwood, Lancaster University, UK**

The logo consists of a vertical line intersected by a horizontal line. To the left of the vertical line, there are two overlapping squares: a grey one on top and a green one on the bottom. To the right of the vertical line, there are two overlapping squares: a yellow one on top and a green one on the bottom.

# ACoM'07 Program

## Session 1 - Innovative Metrics for Module Dependencies

Chair: Robert Walker, University of Calgary – Canada

- 9:20 - 9:35 - *Towards Assessing Modularity*  
Hayden Melton, Ewan Tempero (University of Auckland - New Zealand)  
Discussant: Jianjun Zhao (Shanghai Jiao Tong University, China)
- 9:35 - 9:55 - *Semantic Dependencies and Modularity of Aspect-Oriented Software*  
Alberto Neto, Márcio Ribeiro, Marcos Dósea, R. Bonifácio, Paulo Borba, Sérgio Soares  
(Federal University of Pernambuco, Pernambuco State University - Brazil)  
Discussant: Hayden Melton (University of Auckland - New Zealand)
- 9:55 - 10:10 - *Indirect Coupling as a Criteria for Modularity*  
Hong Yul Yang, Ewan Tempero (The University of Auckland - New Zealand)  
Discussant: Chris Lüer (Ball State University - USA)
- 10:10 - 10:30 - *Identifying, Assigning, and Quantifying Crosscutting Concerns*  
Marc Eaddy, A. Aho, G. Murphy (Columbia University - USA, UBC - Canada)  
Discussant: Robert J. Walker (University of Calgary - Canada)
- **Coffee Break**



# ACoM'07 Program

## Session 2 - Modularity Assessment for Evolvability and Reusability

Chair: George Heineman, Worcester Polytechnic Institute – USA

- 11:00 - 11:20 - *Modularization with Externalization of Control Flow*  
Urjaswala Vora (CDAC, Mumbai and IIT - India)  
Discussant: Scott Hendrickson (University of California at Irvine – USA)
- 11:20 - 11:40 - *An Evolution Model for Software Modularity Assessment*  
Yuanfang Cai, Sunny Huynh (Drexel University - USA)  
Discussant: Alberto Costa Neto (Federal University of Pernambuco – Brazil)
- 11:40 - 11:55 - *Assessing Module Reusability*  
Chris Lüer (Ball State University - USA)  
Discussant: Marc Eaddy (Columbia University - USA)

## Session 3 - Challenges on Experimental Design

Chair: Phil Greenwood, Lancaster University – UK

- 11:55 - 12:15 - *On the Necessity of Empirical Studies in the Assessment of Modularization Mechanisms for CCCs*  
S. Apel, C. Kaestner, Salvador Trujillo (Univ. Magdeburg - Germany, Univ. Basque Country - Spain)  
Discussant: Phil Greenwood (Lancaster University - UK)
- 12:15 - 12:30 - Using Design Structure Matrices to Assess Modularity in AO Product Lines  
Pedro Matos, Rafael Duarte, Ivan Cardim, Paulo Borba (Universidade Federal de Pernambuco - Brazil)  
Discussant: Yuanfang Cai (Drexel University - USA)

**12:30 - 14:00 - Lunch**

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# ACoM'07 Program

## Session 3 - Challenges on Experimental Design (cont.)

- 14:00 - 14:15 - *Performing and Reviewing Assessments of Contemporary Modularization Approaches: What Constitutes Reasonable Expectations?*  
Robert J. Walker (University of Calgary - Canada)  
Discussant: Thomas D. LaToza (Carnegie Mellon University – USA)
- 14:15 - 14:30 - *Using Program Families for Maintenance Experiments*  
Scott D. Fleming, R. Kurt Stirewalt, Laura K. Dillon (Michigan State Univ. - USA)  
Discussant: Salvador Trujillo (University of the Basque Country – Spain)
- 14:30 - 15:30 - **Discussion Groups**

15:30 - 16:00 - Coffee Break

- 16:00 - 16:45 - Discussion Groups (continuation)
- 16:45 - 17:45 - Group Presentations



# Guidelines for the Discussions

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- Select a leader for moderating the discussions, and one member for giving the presentation
- Prepare a presentation (10 mins.) based on the discussion outcomes
- Suggested list of generic points to be followed in the discussions:
  - state-of-the-art
  - problems to be solved
  - solution proposals/research directions
- Discussions can also be based on particular papers presented
- Also a opportunity for other participants bring new issues for discussion