

PLEASE2013

4th International Workshop on Product Line Approaches in Software Engineering, May 20, San Francisco, California
held in conjunction with the 35th International Conference on Software Engineering (ICSE 2013)

Challenges in Managing Behavior Variability of Production Control Software

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Contact Profile

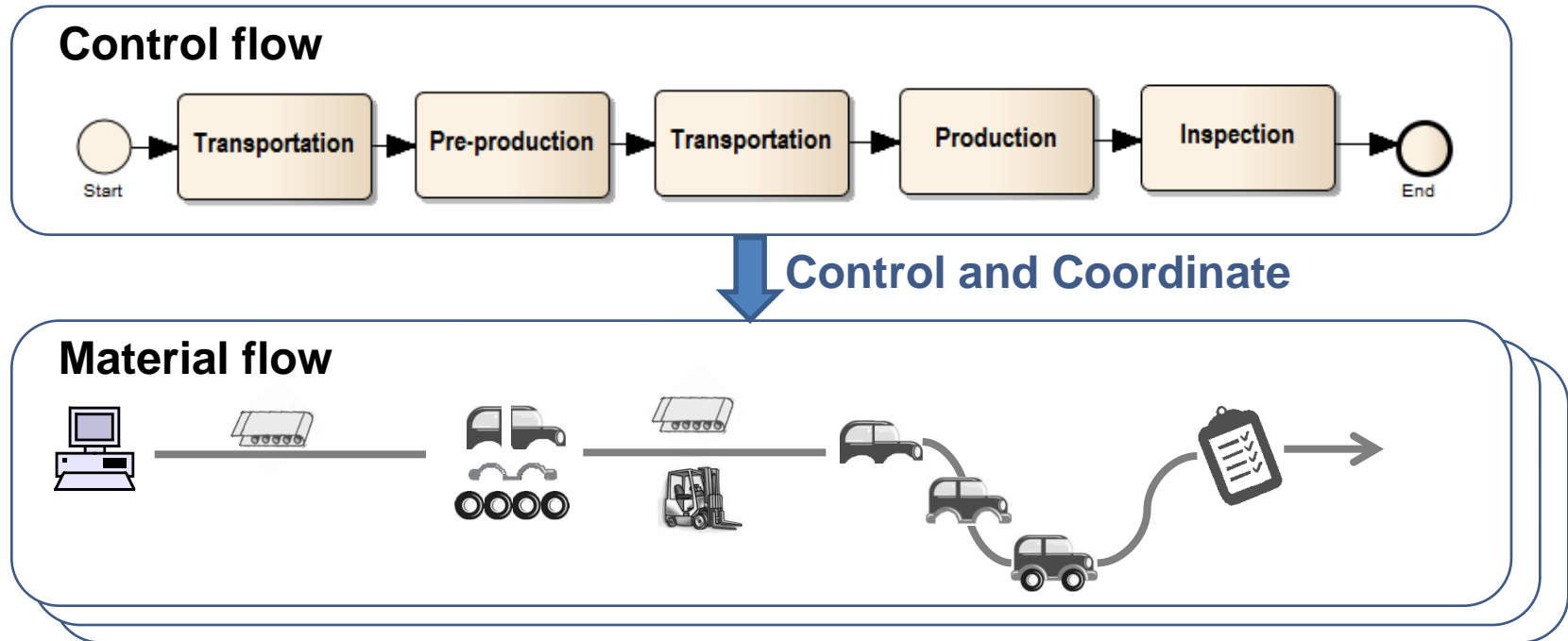
Miao Fang

- Ph.D student (miao.fang@siemens.com)
- Architecture Definition and Management Group
- **Research Focus**
 - Variability management in software product line architecture
 - Software architecture description
- **Objectives**
 - Looking for experience in similar domains
 - Getting in contact with researchers with similar interests
 - Getting feedback about the challenges from experts in SPL community

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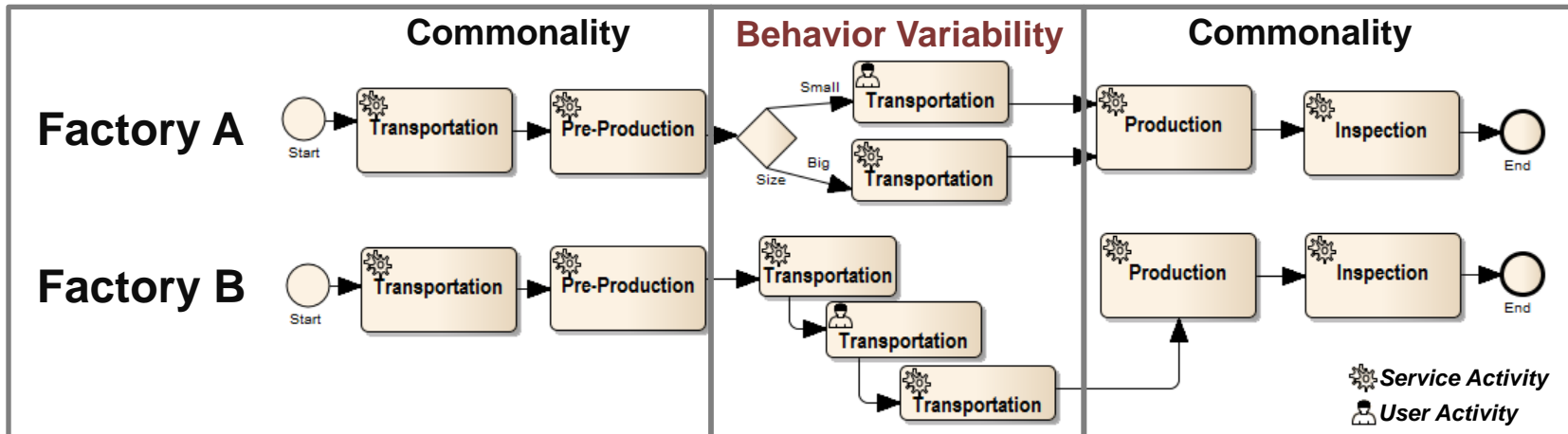
Product Line

Production control systems are the software systems that manage the manufacturing processes in factories.



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The Problem



The challenges in managing behavior variability

- Modeling flexible combinations of activities
- Choosing the right abstraction/detail levels
- Resolve binding (the timing and strategies)

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Current Solution

- **Solution ideas for representation**
 - Configurable process models
 - Business process models, activity models, event-driven process chains
 - Domain-specific languages (DSLs)
- **Solution ideas for implementation**
 - Identify different types of activities and their influence to binding strategies

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Why is it interesting?

- **To academia**
 - Variability management challenges of real-world and complex manufacturing systems
 - Understanding the relationship among different types of variability and its impacts to SPL infrastructure
- **To industry**
 - Limiting and controlling complexity
 - High potential to improve productivity in product derivation

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Discussion

- The relationship of behavior variability to other types of variability
 - What are the existing approaches?
- Process reference models and configuration
 - What are the related works for the process reference models?
 - What are the related works for developing tool support?
- Model-driven approaches in solving this kind of problems
 - What are the relevant viewpoints to model?
 - How to establish the relationship and mapping among viewpoints?

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Potential Collaborations

Title	Autor(s)
Variability Support for Variant-Rich Software Ecosystems	Klaus Schmid
Graphical User Interfaces in Dynamic Software Product Lines	Dean Kramer, Samia Oussena, Peter Komisarczuk, Tony Clark
Variability in Software Process Models: Requirements for Adoption in Industrial Settings	Jocelyn Simmonds, María Cecilia Bastarrica, Luis Silvestre, Alcides Quispe
Products as Product Lines	Grady Campbell
Knowledge-assisted Product Requirements Configurator	Preethu Rose, Shashikant Sharma, Manish Motwani, Smita Ghaisas

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Thank you!