Industrial Experiences from Multi-Paradigmatic Modelling of Signal Processing

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Identifying the domains

Signal processing domain
- Specialized algorithms
- Crucial performance requirements

Control domain
- Complex control of algorithms

Interfaces
Good enough languages

"System architect"
Control domain
xtUML

Platform
"Algorithm designer"
Signal processing domain
Feldspar

Domain specific
Platform specific

Domain interaction

Control domain

Interface

Signal processing

x1

x3

x4

x5
Integration and deployment

Control

xtUML

Interface

Logical

Signal processing

Feldspar

Platform
Conclusions

+ Clear domain separation
+ No side effects from Feldspar
+ Executable models

- Late integration testing
- Dependent on efficient transformations

? Languages close enough to domains
? Multicore
? New platforms
? Integration