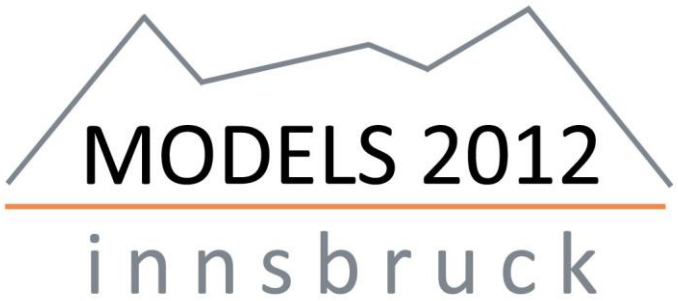




# EduSymp 2012 - Panel

## How do we inspire students to model?

Oct. 1st, 2012 – Innsbruck AUSTRIA

# How do we inspire students to model?

## The panelists:

### Colin ATKINSON

- Full Professor at University of Mannheim, Germany
- currently the head of the Software Engineering Group
- Former professor at the University of Kaiserslautern

  and project leader at the affiliated Fraunhofer Institute for Experimental Software Engineering
- International recognition in two main research areas: Model-Driven Development and Component-Based Development
- Author of more than 180 scientific publications, including 4 books (as sole author or prime author) and 21 journal papers
- the KobrA method described in the book “Component-Based Product Line Engineering with UML” has been used successfully in numerous industrial projects and is being studied by the German Navy to model their large embedded software systems
- General Chair with Ruth BREU at MODELS 2012

# How do we inspire students to model?

## The panelists:

### Bernd BRUEGGE

- Professor of Computer Science with a chair for Applied Software Engineering at the Technische Universität München (TUM)
- Adjunct Associate Professor at Carnegie Mellon University (CMU)
- member in the Board of Directors at Center for Digital Technology & Management, a joint research institution of LUM & TUM
- In 1995, won the Herbert A. Simon Excellence in Teaching Award at the CMU
- for 20 years has been studying and teaching Software Engineering at CMU & Pittsburgh, where he received his masters and doctorate degrees
- Author of more than 60 scientific publications
- teaches modeling in Software Engineering from a very unique view based on his well known book "Object-oriented software engineering: using UML, patterns, and Java" - now in the 3rd edition

# How do we inspire students to model?

## The panelists:

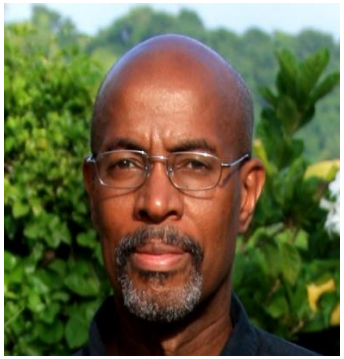
### Jean Michel BRUEL

- full professor in CS at the University of Toulouse
- head of the Computer Science Department of the Technical Institute of Blagnac since 2009
- Co-director of the Master of Science ICE (formerly NTIE) since 2008
- Program Committee Member in more than 60 International Conferences
- his research areas include development of distributed, component-based applications, methods integration, and on the use of formal methods in the Component-Based Software Engineering context
- Author of more than 40 scientific publications
- General-Chair at MODELS 2008 with Ileana OBER

# How do we inspire students to model?

## The panelists:

**Robert B. FRANCE**



- Full Professor (tenured) in Computer Science at Colorado State University, since 2004
- Editor-in-chief, Journal on Software and System Modeling (SoSyM), Springer from 2001
- Software Area Editor, IEEE Computer from 2006
- Associate Editor, Journal of Software Testing, Verification and Reliability (JSTVR) from 2006
- Associate Editor for the IASTED International Journal of Computers and Applications between 2003-2006
- Author of more than 168 scientific papers
- More than 42 invited talks and panels
- More than 9 time Conference organizer and in steering committees
- More than 23 time in Selected Workshops Organization Committees
- Program Committee Member in more than 17 Conferences

# How do we inspire students to model?

## The panelists:

### Jeff GRAY

- Associate Professor - Department of Computer Science – University of Alabama
- a National Science Foundation CAREER award winner
- The 2008 Alabama Professor of the Year
- Senior member of both the ACM and IEEE; he currently serves as the chair of the Alabama IEEE Computer Society
- in 1991, Jeff graduated summa cum laude with a BS in Computer Science from West Virginia University
- He received a Ph.D. in Computer Science in May of 2002 from the Department of Electrical Engineering and Computer Science at Vanderbilt University in Nashville
- Author of more than 146 scientific publications
- General Chair with Antonio VALECILLO of MODELS 2013

# How do we inspire students to model?

## The panelists:

### Bran SELIC

- President of Malina Software Corp – Canada,
- Director of Advanced Technology at Zeligsoft Limited,
- Visiting Scientist at Simula Laboratories in Norway,
- Adjunct Professor on Computer Science at the University of Toronto and at Carleton University (Ottawa, Canada),
- Guest Lecturer and Researcher at the University of Sydney (Australia) and at INSA (Lyon, France)
- Former Distinguished Engineer at IBM
- Author of more than 90 scientific publications
- more than 40 years of practical experience in designing and implementing large-scale industrial software systems
- "*I always recognized Bran as a particular gifted modeler and metamodeler, but in the UML team he showed his extraordinary leadership qualities*."
  [Manfred Koethe – Co-Founder & Chief Technology Officer, 88solutions Corporation]

# How do we inspire students to model?

## The problem

- *"Modeling of software is becoming a pervasive technique to help software engineers understand, engineer, and communicate aspects of the software to appropriate stakeholders."* [The IEEE Guide to the Software Engineering Body of Knowledge (SWEBOK) V3, open for public review on the 2 March 2012]

- The rate of success in case of companies that use MDE techniques is very different between companies. " ***... the factors relating to whether new technologies succeed or fail are more often social or organizational rather than technical. This is true as well for MDE ...*** " [Jon Whittle and John Hutchinson - What Factors Lead to Industrial Success or Failure with MDE?]

# How do we inspire students to model?

## The problem / 2

- "... ***MDE is still in the early adoption phase*** *and to be successfully adopted by industry,* ***it must prove its superiority over other development paradigms*** *and be supported by a rich ecosystem of stable, compatible and standardized tools.* ***It should also not introduce more complexity than it removes***." [Parastoo Mohagheghi et al - MDE Adoption in Industry: Challenges and Success Criteria - Models in Software Engineering - pp. 54-59 - Springer 2009 - MODELPLEX project (IST-FP6-2006)]

- Many students *"**... tend to view software modeling with great skepticism**" and "**... often feel that modeling adds accidental complexity to the software development process as they perceive it.**"* [Robert B France - Teaching Programming Students how to Model: Challenges & Opportunities, Invited Speak at EduSymp 2011]

# How do we inspire students to model?

## The state of facts in teaching modeling

- "**Teaching reduces the gap [between theory and practice] and research increases it again**." [Tony Hoare ICSE 1996]

- "**In never-ending Research-Development-Teaching cycles, MDE is now in the position where the teaching question is probably the more acute**. " [Jean Bezivin MODELS 2009]

- **Teaching Modeling: [Why] How, When, What?**

# How do we inspire students to model?

## The place & the topics of an Introductory Course on Modeling in the CS curriculum

- Do you support the inclusion of an **Introductory Course on Modeling**, in a **Software Engineering Curriculum,** or you are for an **Independent Modeling Course?**

- Which are the **mandatory topics for a successful Introductory Course on Modeling** and which are the topics that must be omitted from such a course?

- Is there **anything unique about Model-Based Engineering** that requires special methods not generally used for other software engineering courses?

# How do we inspire students to model?

## Examples, associated models & model correctness

- How important is the role of **examples & associated models** in such a course? How important is it to use models of real problems? When and why the size of models is it important? Is it profitable to use examples from ReMoDD?

- **Is model correctness important?** When (and why) is it the size of models important?

- **How to overcome the bias some students have against using modeling in software?** What are the sources of that bias? Have you a solution to bypass this problem?

# How do we inspire students to model?

## The role of modeling languages, process & tools

- How important is **the role of modeling languages?** In case of an Introductory Modeling Course, are you for **using UML** (or just **a part of UML**) of for **a Domain-Specific Modeling Language**?

- How important is **the modeling process** used in teaching modeling?

- How important are **the modeling tools** used in teaching? Are the existent tools appropriate?

# How do we inspire students to model?

## Teaching in modeling academic environments; additional things

- **How should modeling be taught in class in modern academic environments** where the distractions of a ubiquitous internet access and other communication media pervade**?**

- **What additional software engineering and other skills should be taught** to complement model-based engineering methods?

- Are **the ingredients of a successful modeling** course in the industry different from that of a similar course in universities?

# How do we inspire students to model?
## The formula for succeeding?

- **Very probably, the formula for succeeding in teaching software modeling needs correct answers at a part of the above-mentioned questions, not necessary at all - may be even at other questions. What is yours opinion?**