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) or 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?