Next Generation
Enterprise Modelling
Methods | Frameworks | Tools

Program Booklet

General Information

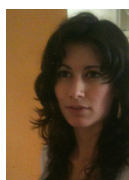**Summer School Venue**

Alpen-Adria-Universität Klagenfurt
Universitätsstraße 65-67
9020 Klagenfurt
Austria
T +43 463 2700-9200

Public means of transport

Bus: 81
Bus station: Klagenfurt Universität (Universitätsstraße)
Trip planning: http://www.stw.at/mobilitaet-busse-on-line-auskunft-auskunft.php

Taxi

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Emergency callS

Rescue 144
Police 133
Fire department 122

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Welcome!

The "Next Generation Enterprise Modelling" (NEMO) summer school brings together a wide community of academics and students interested in various aspects of modelling. It targets different domains and approaches acknowledging that in today's enterprises, modelling methods are widely used on every level and for several purposes, being mostly supported by modelling tools.

The summer school provides a highly-interactive experimental environment where students and teachers focus on "modelling" addressing especially:

- Foundations of Conceptual Modelling, i.e. formal methods and tools for the creation, transformation and application of modelling methods.
- Technologies for Conceptual Modelling, i.e. model execution technologies, meta-modelling platforms, model compilers, adaption to diverse devices and multi-client applications.
- Application Domains, i.e. Enterprise Information Systems, e-Government, Health Care and Ambient Assisted Living.
- Cross-cutting issues, i.e. information security, privacy, risk management and governance, and quality assurance of models and methods.

The community of students we aim to build with this summer school will apply the acquired knowledge in working groups by developing prototyping solutions to different kinds of problems. Previously they have the opportunity to listen to more than 30 speakers from 14 different European and Asian countries covering current developments in one of the four pillars mentioned above. And as communities are not built only on work but need common experiences to bond, several social events foster the creation of a closely linked international community of young modelling specialists.

We would like to thank all the speakers and their teams, who supported us with their commitment and work along the way in order to create this event.

The summer school could not have been realised without the tireless work of the two organisational teams at the Research Group Knowledge Engineering (University of Vienna) and the Application Engineering Research Group (Alpen-Adria-Universität). Also our gratitude goes to the Alpen-Adria-Universität for providing the location and facilities.

And last but not least we would like to thank the National Agency for Lifelong Learning, who supported our endeavor with European Commision funds.

We hope that you all will have an extraordinary time, learning and enjoying your time at the NEMO summer school.

Dimitris Karagiannis   *Heinrich C. Mayr*

Vienna and Klagenfurt, June 2014

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Open Model Initiative Laboratory
University of Vienna

The Open Models (OMi) Laboratory is a dedicated research and experimentation space for modelling method enginering. Both a physical and virtual place, it is equipped with tools to explore method creation and design, experiment with method engineering and deploy software tools for modelling.

Open to all those interested, the laboratory is a platform where all participants can bring in ideas related to modelling and engage in the exploration process.

The lab follows a user-driven approach in its understanding of the term „model". Experts and novices are equally invited to contribute and extract knowledge. The lab's idea is to act as a facilitator to the development and application of scientific methods to communities who value models, and implicitly modelling methods. Users are not limited to certain domains or functional areas of organizations. There are useful models in widely different domains like information technology, biology, chemistry, or medicine as well as various models for functional areas like procurement, marketing, logistics or enginee-ring.

At the same time the lab promotes openness of community projects and encourages communities to share their projects to the extent feasible.

As the construction of modelling methods is a complex task, the OMi Laboratory introduces the OMiLaboratory Lifecycle which uses the "Conceptualization Process" as a framework for developing modelling methods. Starting with the "Creation" step and ranging until the "Deployment" of the modelling method as an IT-tool, the laboratory provides the conceptual steps, the collaborative environment and the necessary working resources. For the "Design", "Formalization" and "Development" steps the OMi Laboratory makes an open use of the ADOxx meta-modelling platform. Such a platform allows the use of concepts that support the modelling method engineering process (e.g. patterns, DSML)

and formalisms which favour the re-use/evolution/variants of modelling methods. It also grants openness to other tools and open source add-ons.

The main vision carrying the idea of the Open Model Initiative Laboratory is: Models for Everyone!

Visit us at **www.omilab.org**!

Research Group Knowledge Engineering
University of Vienna
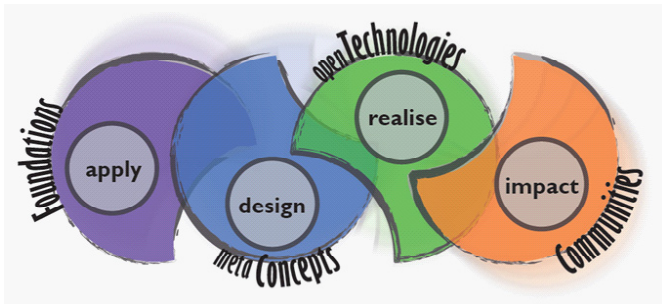
To provide transparent, ubiquitous knowledge that can be semantically processed by IT systems is the main research goal of the Research Group Knowledge Engineering. The group develops concepts for modeling languages and methods as well as step models and realizes concrete models. The contributions herewith advert to the research paradigm of design science in business informatics. Thereby realized results are deployed primarily within the research field of modeling methods and find its applicability in the form of information systems in the economy.

According to the development plan of the University of Vienna and the Faculty of Computer Science the scientific work of the research group is associated to the overall defined research focus "Knowledge-based Process Management". Within this core area the work accomplished by the group provides novel research results in the areas of Meta Modeling, Meta Data and Ontologies, Hybrid Method Engineering and Business Intelligence.

Based on mathematical and statistical foundations, theoretical approaches are adapted and applied. The fundamental research paradigm relies on concepts of meta modeling that are further developed and deployed to derive knowledge out of (un)structured data on the one side and to provide transparent knowledge with formal and semi-formal modeling methods on the other side. The developed meta models are realized with open technologies in form of web based user and context specific applications and made available to the community.

In order to promote the exchange in regards to content and technological advancements in the method engineering community, the group has established the Open Models Initiative. The dissemination of established know how, the exploitation of recent research results and their further development assures a sustainable impact on the community. The strategic goal of the initiative is to offer modeling methods and their applications freely available for subject matter experts. Technological the Open Models Initiative is supported by the Open Models Platform, that provides open interaction and discussion for its users, as well as the exchange and advancements of modeling methods (www.omilab.org) and specific models (www.openmodels.at).

In the context of international cooperation the group provides research-guided teaching on a advanced scientific level with practical relevance mainly in the area of business informatics.
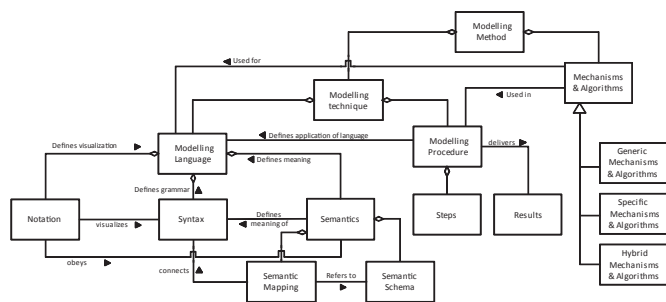
Kühn et al. (2001): Managing Complexity in E-Business In: Baake, U. F.; Herbst, J.; Schwarz, S. (Eds.): Proceedings of the 8th European Concurrent Engineering Conference 2001 (ECEC'2001), April 18-20, 2001, Valencia, Spain. Society of Computer Simulation. pp. 6-11.

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The Application Engineering Research Group
Alpen-Adria-Universität Klagenfurt

We are committed to human-centered informatics: our research and teaching activities address the design, architecture, implementation and quality of human-centered application systems. We conduct both, fundamental as well as applied/experimental research with an emphasis on modeling, computational linguistics, and software quality. Currently, we are working at research projects in the areas of AAL-Ambient Assisted Living (HBMS-Human Behavior Monitoring and Support), Text Understanding, and Quality Management in Software Development Processes (QuASE-Quality Aware Software Engineering).

AAL research aims at IT methods that enable the elderly to live as autonomously and for long as possible in their domestic environment.

In HBMS we use our experiences in modeling and computational linguistics for deriving an individual cognitive behavioral model from the observed behavior of a particular person. For that purpose, the "Human Cognitive Modeling Language HCM-L" has been developed and underpinned by a tool (HCM-L Modeler) based on the meta-modeling platform ADOxx®). HCM-L models of a person's behavior are used for ambient support when needed, by applying reasoning methods and findings from the field of cognitive psychology. Thus, knowledge "learned" in this way serves to compensate for gaps in the episodic memory of the respective person and to support them in their activities.

Effective **Quality-Related Communication** between the different parties involved is crucial for the success of software development processes. Besides of enabling such communication, the communicated quality-related information has to be managed properly and made available during the entire software development process; as past-experience may help to take the right decisions, it should be provided in a way that allows for easy access and analysis. In the QuASE project we aim at establishing means for all this, based on acquired and formalized domain knowledge about quality issues in software processes. Moreover, we work at supporting decision making in the software process as well as reuse of quality-related experience.

Across the globe, vast quantities of information are produced daily, usually taking an unstructured, merely textual form. For humans, "understanding" these texts generally poses no difficulties. However, the same cannot be said for computers. **Computational linguistics** develop methods and software, which allow computers to "understand" texts ("natural language") and thus to process these. We are running a series of projects and master/PhD-theses in this area, also in co-operation with spin-off companies of the institute.

Group members are actively involved in scientific associations, professional associations, on the editorial boards of journals, and in organizing international conferences.

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Social Events

The NEMO Summer School comes with a program chock-full of lectures and working group sessions: the participants, students and lecturers, thus will experience two intensive weeks of insights into the present state of research, theory and practice of modeling.

However, this is only one side of the coin: the other side is the opportunity to meet student colleagues and renowned professors from all over Europe, to discuss with them, to exchange ideas, to learn from each other, and to make new friends - all that in the beautiful and exciting countryside of Carinthia and its capital city Klagenfurt am Wörthersee.

A couple of social events and excursions will be offered, for example
- a welcome-reception on Sunday, July 6, 6pm – 8pm; Restaurant Ghandi, Building E, Level 0;
- an guided tour through downtown Klagenfurt, its narrow alleys, picturesque squares and unique courtyards;
- an excursion on Saturday, July 12, 8:30 am - 10pm: we will visit a 850 years old castle, enjoy a typical Carinthian snack, experience some breathtaking views of Carinthian mountains and lakes, take a pleasant raft ride on river Drau, and have Dinner in a typical Carinthian restaurant;
- a boat trip on Wörthersee,
- a farewell barbecue party on Friday, July 18, 19pm - 23pm.

Detailed information will be provided at the summer school.

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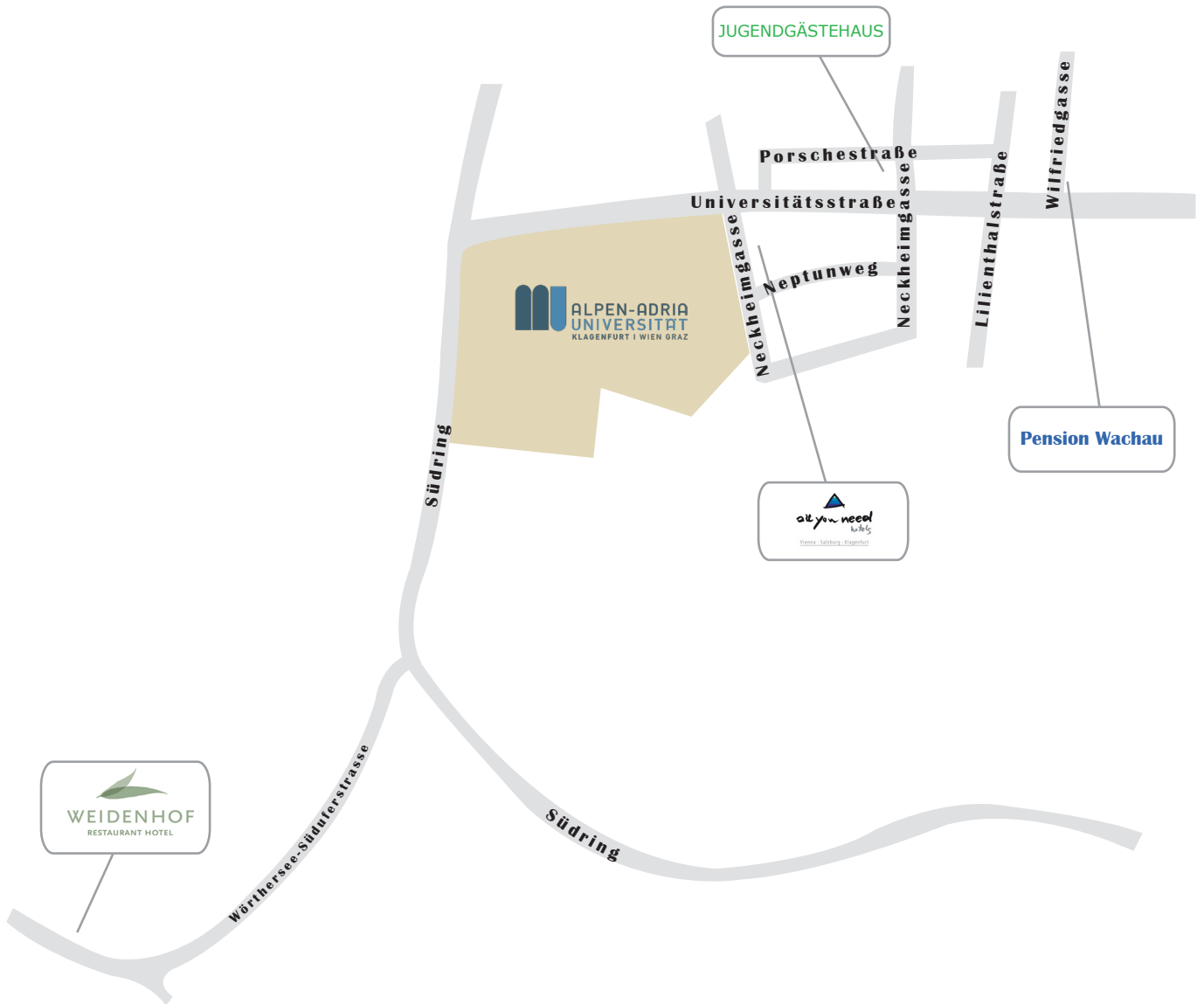
AllYouNeed Hotel Klagenfurt***
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Weidenhof
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TEL: + 43 463 281540
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Klagenfurt am Wörthersee:

Klagenfurt am Wörthersee is the capital of the federal state of Carinthia in Austria.

With a population of over 90,000, it is the sixth-largest city in the country. The city is the bishop's seat of the Roman Catholic Roman Catholic Diocese of Gurk-Klagenfurt and home to the Alpen-Adria-Universität Klagenfurt.
About 20 km long and 1–2 km wide. It stretches from the Carinthian capital Klagenfurt in the east to Velden in the west. It is flanked to the north and south by steep alpine foothills covered with dense forests, beyond which snow-capped alpine peaks are visible. The lake's water is a distinctive blue-green colour and transparent.

In the early nineteenth century the marshy shores were home only to a handful of poor peasants. The construction of the Austrian Southern Railway (Südbahn), in the middle of the nineteenth century quickly turned the Wörthersee into an exclusive summer retreat for Vienna's nobility.

In winter, the region is often covered by snow and approximately every 10 years the lake freezes over, attracting numerous ice skaters.

Alpen-Adria-Universität Klagenfurt:

The Alpen-Adria-Universität Klagenfurt has been futureoriented and dynamic from the day it was founded. Today it is Carinthia's leading educational and research institution. It opens its doors to the whole world and thrives on interculturality and people whose minds know no frontiers.

In contrast to the mass universities, the structure and the manageable scale of the university have positive effects in many respects: on research and its organisation, on teaching operations and on internal administration. These benefits are compounded by the specific character of a genuine campus university. This compact structure is of considerable advantage for the organisation of student life (lecture halls, library, refectory, student dorm etc) and for cross-disciplinary research activities.

You can find a map of the University here:
https://campus-gis.aau.at/

Sources: www.uni-klu.ac.at, http://en.wikipedia.org, http://www.runnersfun.com/referenzen/orte-regionen/dellach-am-woerthersee/, http://www.glundnerkas.at/, http://diepresse.com/home/bildung/universitaet/569031/Studenten-besetzen-Rektorat-der-Uni-Klagenfurt

Location and floor plan

Main University Entrance

Mensa (University Restaurant)

Jugend-Gästehaus

All You Need Hotel

Südtrakt E
Venue of the Nemo Summer School

Main University Entrance

Hörsaal B
Nemo Plenary Sessions

NEMO reception and registration

Building E:
Seminar rooms at different levels

Lecture Descriptions

Next Generation Modelling Enterprises: Foundations

Prof. Dr. Dimitris Karagiannis and Dr. Robert Buchmann, University of Vienna

(margin tabs: Foundation, Application, Technologies, Crosscutting Issues)

Abstract:

As enterprise modelling originally envisioned, a hybridization of modelling approaches is needed in order to cover the multiple facets of a business view, its context and its resource requirements (including IT support requirements). The concept of a "modelling method" establishes key building blocks to enable the required hybrid modelling and to increase the value of models beyond the functions traditionally employed within the paradigm of model-driven software engineering.

The presentation will establish meta-modelling foundations and principles, addressing requirements from the field of enterprise modelling. These foundations, as well as the building blocks and the value of meta-models, will be discussed both in a general case and in the concrete, scenario-oriented application case given by the ComVantage FP7 research project (http://comvantage.eu). Technological, conceptual and formal foundations will be discussed as enablers for next generation enterprise modelling.

The ComVantage project investigates new possibilities for enterprise collaboration, raised by mobile technology and the Linked Data paradigm, hence it provides relevant enterprise scenarios. To fulfil such scenarios, a modelling method was introduced to enable a holistic approach to modelling business processes within their business context and execution environment. A modelling prototype implementation was developed within the framework of OMILab (http://www.omilab.org/web/comvantage/home). Exemplary situations will be described in order to highlight and reflect on specific meta-modelling decisions.

Bio:

Prof. Dr. Dimitris Karagiannis is head of the research group knowledge engineering at the University of Vienna. His main research interests include knowledge management, modelling methods and meta-modelling. Besides his engagement in national and EU-funded research projects Dimitris Karagiannis is the author of research papers and books on Knowledge Databases, Business Process Management, Workflow-Systems and Knowledge Management. He serves as expert in various international conferences and is presently on the editorial board of Business & Information Systems Engineering (BISE), Enterprise Modelling and Information Systems Architectures and the Journal of Systems Integration. He is member of IEEE and ACM and is on the executive board of GI as well as on the steering committee of the Austrian Computer Society and its Special Interest Group on IT Governance. Recently he started the Open Model Initiative (www.open-models.at) in Austria.

Dr. Robert Buchmann received his PhD from „Babeș-Bolyai" University Cluj, Romania, in 2005, in the field of Business Information Systems. As a lecturer in the same university, he further specialised in semantic information systems design. He is working with University of Vienna since 2011, as a team leader in the ComVantage FP7 research project, investigating the interplay between modelling methods and semantic information systems.

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Contacts:
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Modelling Business Applications with REA-Patterns

Dr. Liping Zhao, University of Manchester

Abstract:

Published in 1982 by McCarthy, the REA (resource-event-agent) model is a fundamental business model. This model contains three basic business concepts, which are Resources, Events and Agents, and their relationships, which are stockflow, duality, control and responsibility. The REA model describes the fundamental structure and behaviour of any business enterprise. According to this model, the core of an enterprise's activities over the course of its life is constituted by its history of economic exchanges or economic conversations with parties inside and outside of the firm's boundaries.

Based on the REA model, Hruby and his colleagues at Microsoft Development Centre Copenhagen have developed a set of business patterns. These patterns are divided into Structural Patterns and Behavioural Patterns. Structural Patterns are instances of the REA model at the business operation level, whereas Behavioural Patterns extend the REA model with software system functionality. My lecture will first introduce the REA model and its associated business patterns. I will then elucidate how these patterns can be used to model a complete business application.

Bio:

Dr Zhao is a senior lecturer in the School of Computer Science, University of Manchester. She works in the area of software engineering, with a particular focus on discovering and developing reusable software patterns, providing tools to supporting the use of these patterns for software development, and finding technologies to bridge the gap between natural language specifications of software requirements and initial software models. She published the first papers on domain-specific patterns for software analysis and design, and was the first to use the scientific concepts of symmetry and symmetry breaking to explain the meaning of software patterns and why they are important. Most recently, she led the research and development of an innovative software system that applies advanced natural language processing and modeling techniques to automatically transforming natural language specifications of software requirements into initial software models. She received three IBM Faculty Awards for her outstanding contributions to software patterns and service sciences. She has published more than 100 scientific papers and edited 2 books.

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A Method for Designing Domain-Specific Modelling Languages
Prof. Dr. Ulrich Frank, Universität Duisburg-Essen

Abstract:

In recent years, the development of domain-specific modelling languages (DSML) has gained remarkable attention. This is for good reasons: A DSML incorporates concepts that represent domain-level knowledge. Hence, systems analysts are not forced to reconstruct these concepts from scratch. At the same time, DSML contribute to model integrity, because they include already constraints that would otherwise to be added manually. Even though there has been a considerable amount of research on developing and using domain-specific modelling languages, there is still lack of comprehensive methods to guide the design of these languages. In this course the participants will learn to use a method for designing DSML. It includes heuristics to analyse requirements and meta-modelling guidelines that support frequent design decisions. The use of the method will be illustrated by the development of an example DSML.

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Bio:

Ulrich Frank holds the chair of Information Systems and Enterprise Modelling at the Institute of Computer Science and Business Information Systems at the University of Duisburg-Essen. His main research topic is enterprise modelling, i.e. the development and evaluation of modelling languages, methods and corresponding tools. Further areas of research include research methods, method engineering, models at run time and methods for IT management. He is founder of the international student exchange network IS:link. He is on the editorial boards of the journals Information Systems Architectures, Business & Information Systems Engineering, Journal of Information System Modeling and Design, Software and Systems Modeling and Information Systems and E-Business Management. He has been actively involved in numerous conferences and various major research projects. He had assignments as visiting researcher/professor in various countries. Ulrich Frank is the founding director of the international student exchange network IS:link.

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Goal-Modelling: Organization Theory, Domains-Specific Modelling and Applications

Prof. Dr. Stefan Strecker, FernUniversität Hagen

Abstract:

Organizations, despite their apparent preoccupation with facts, numbers, objectivity, concreteness, and accountability, are in fact saturated with subjectivity, abstraction, guesses, making do, invention, and arbitrariness ... just like the rest of us" (Weick 1980, p. 5) - This lecture addresses challenges when constructing a domain-specific modelling language (DSML) in support of managerial decision-making, specifically communication about intentions, expectations and goals of decision-makers and other human actors involved in such group processes. Following a method for designing a DSML (Frank 2010) presented in the early morning lecture, essential design alternatives and design decisions w.r.t. a respective language design will be discussed. A subsequent afternoon exercise session will further the discussion.

Contacts:
Prof. Dr. Stefan Strecker
FernUniversität Hagen
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Bio:

Stefan Strecker is a Full Professor at the University of Hagen (FernUniversität in Hagen) in Germany, where he holds the Chair of Information Systems Development at the School of Management and Economics, and heads the Enterprise Modelling research group. His research and teaching focus is on enterprise modelling and its applications to managerial analyses and decision-making. He has contributed to constructing and specifying a number of domain-specific modelling languages and modelling methods in the domains of, for example, organisational performance measurement, risk assessment, and auditing. Prof. Strecker is on the editorial board of several journals, track chair and member of the programme committee of workshops and conferences in the field of enterprise modelling, and he currently acts as vice spokesperson of the Special Interest Group 'Business Informatics' of the German Informatics Society (Gesellschaft für Informatik). More about him can be found at http://www.fernuni-hagen.de/evis/team/stefan.strecker.shtml.

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Ontological Foundations for Conceptual Modelling

Prof. Dr. Giancarlo Guizzardi, University of Trento/UFES

Abstract:

The main objective of this course is to introduce researchers to the theory and practice of a new emerging discipline named Ontology-Driven Conceptual Modeling. In this discipline, theories coming from areas such as Formal Ontology in philosophy, but also Cognitive Science, Philosophical Logics and Linguistics are employed to derive engineering tools (e.g., modeling languages, methodologies, design patterns and anti-patterns, model compilers and simulators) for improving the theory and practice of Conceptual Modeling, in general, and Domain Ontology Engineering, in particular. In this course, the expressiveness and relevance of these theories and derived tools are demonstrated through their application to solve some classical and recurrent modeling problems concerning the well-founded representation of: classification and taxonomic structures, part-whole relations, intrinsic and relational properties, formal and material associations, association specialization, attribute conceptual spaces, roles and events.

Bio:

Giancarlo Guizzardi obtained a PhD degree (with the highest distinction) from the University of Twente, in The Netherlands in 2005. He is an associate professor and research lead in the Ontology and Conceptual Modeling Research Group (NEMO), Federal University of Espirito Santo, in Brazil, a visiting professor at the University of Trento, Italy, and an associate researcher at the Laboratory for Applied Ontology (LOA), at the ISTC-CNR, Italy. He has been working since 1997 in the development of Domain and Foundational Ontologies and their application in computer science, primarily, in the area of Conceptual Modeling. He is a former member of the Executive Council and currently a member of the Advisory Board of the International Association for Ontologies and its Applications (IAOA). Furthermore, he has been actively involved in a number of international conferences in the areas of conceptual modeling and ontologies, including FOIS (PC chair, general organization chair), CAISE (Program Board member, tutorialist, panelist), ER (tutoria-list, PC member) and IEEE EDOC (PC chair). He has also been an editorial board member of journals such as Applied Ontology, Requirements Engineering, Semantic Web and International Journal of Information Systems Modeling and Design. Finally, he has led a number of industrial projects in domains such as Off-Shore Software Development, Digital Journalism, E-Government, Energy, Telecommunications and Complex Media Management.

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Business Decision Modelling
Prof. Dr. Jan Vanthienen, Katholieke Universiteit Leuven

Abstract:

Business processes incorporate lots of decisions. Business decisions are important, but are often hidden in process flows or activities. It is not considered good practice to model the detailed decision paths in the business process model, because hardcoding (decision) rules in processes leads to complex and inflexible process models. Separating rules and decisions from the process simplifies the process model (separation of concerns). In analogy with the Business Process Modelling & Notation Standard (BPMN), a Decision Model & Notation standard (DMN) is being developed. Decision modelling describes business decisions to be made, with their interrelationships and requirements, together with the detailed decision logic used to make the decision. One of the common forms of decision modelling is a structure of decision tables, describing the premises and resulting outcomes of a specific decision situation. This course is about the relations between business rules, decisions, decision tables, and business processes.

ses and business decisions. He is also member of the IEEE task force on process mining, and co-author of the Business Process Mining Manifesto.

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Bio:

Jan Vanthienen is full professor of information systems at KU Leuven (Belgium), Department of Decision Sciences and Information Management, Information Systems Group, where he is teaching and researching on business intelligence, analytics, business rules & processes, decision modeling, and business information systems. He has published numerous papers in reviewed international journals and conference proceedings. Jan is a founding member and coordinator of the Leuven Institute for Research in Information Systems (LIRIS) and received the Belgian Francqui Chair 2009 at FUNDP and an IBM Faculty Award in 2011. He is co-founder and president-elect of the Benelux Association for Information Systems (BENAIS). Jan is actively involved in the upcoming Decision Modeling & Notation standard (DMN) at OMG (Object Management Group). This standard will be designed to complement the Business Process Modeling & Notation (BPMN) standard, in order to integrate and distinguish business proces-

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Business Process Management and Ontologies as an Application Domain for Meta-Modelling

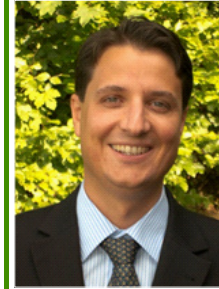**PD Dr. Hans-Georg Fill, University of Vienna**

Abstract:

In this lecture it will be shown how concepts of meta modelling can be applied in two core areas of modern information systems. For this purpose the lecture will start with a brief introduction into the theoretical foundations of meta modelling and the corresponding realization of modelling methods on the ADOxx meta modelling platform. Subsequently, the application areas of business process management and ontologies will be introduced. Thereby it will be particularly focused on the challenges and opportunities of adapting existing modelling concepts in these areas to the personal needs of users, organizations, as well as technical processing functionalities in the form of algorithms. As a solution to these challenges the introduced meta modelling concepts will be applied. Furthermore, it will be discussed how this approach permits to design and implement innovative software applications that bring together the technical opportunities of semantic technologies and established business process management methodologies. The concepts and applications will be illustrated using case studies from research and industry projects. In particular it will be reverted to concepts and implementations from the SeMFIS research project conducted at Stanford University that is hosted at www.omilab.org.

Bio:

PD Dr. Hans-Georg Fill is assistant professor at the University of Vienna and deputy head of the Research Group Knowledge Engineering. He holds a master degree in international business administration and a PhD in business informatics both from the University of Vienna, Austria. In 2013 he received the venia docendi (habilitation) in business informatics from the University of Vienna.. In 2010 he was awarded an Erwin-Schrödinger fellowship for conducting a one year research project at Stanford University in the area of semantic based modelling for information systems. He regularly teaches courses in business informatics on the bachelor and master level at the University of Vienna and at the Ecole Nationale Supérieure des Mines St. Etienne, France. His research interests include semantic information systems, meta-modelling for enterprise information systems and visualization.

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VSM and Enterprise Architecture: Patterns-based Requirements Acquisition

Prof. Dr. Marite Kirikova, Riga Technical University

Abstract:

The approach utilizes the power of systems theory models and enterprise architecture. The meta-structure of Beer's Viable Systems Model (VSM) is taken as the basis for requirements identification and analysis for an information system. The enterprise is considered as a system of systems. The information system is regarded as one of enterprise subsystems which have to mirror the variety of parameters handled by a super-system. Each information flow is represented via specific enterprise architecture pattern in the enterprise model. The use of pattern helps to ensure the consistency of requirements. The use of VSM helps to care that all types of information flows relevant for viability of the enterprise are detected and represented in the enterprise model.

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Bio:

Dr.sc.ing. Mārīte Kirikova is a Professor in Information Systems Design at the Department of Systems Theory and Design, Faculty of Computer Science and Information Technology, Riga Technical University, Latvia. She has more than 150 publications on the topics of requirements engineering, business process modelling, knowledge management, systems development and educational informatics. She is also a co-editor of several scientific proceedings in the area of databases, information systems, information systems engineering, enterprise modelling, systems and business, and business informatics. Marite Kirikova has participated in university research and teaching teams in Sweden, Denmark, Austria, and USA. In her research currently she focuses on information systems design in the context of agile and viable systems paradigms.

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From Requirements to Code:
A Full Model-Driven Development Perspective

Prof. Dr. Oscar Pastor, Universidad Politécnica de Valencia

Abstract:

A crucial success factor in information systems development is the alignment of the system with business goals, business semantics and business processes. Developers should be freed from programming concerns and be able to concentrate on these alignment problems. Model-driven system development (MDD) not only provides a structured and systematic approach to systems development, but also offers developers the possibility of using model transformation technologies to derive models of a lower abstraction level that can be further refined, and even generate software code automatically. From the experience got with the advanced MDD platform provided by Integranova, this presentation will show how to successfully integrate business process modelling (BPM), requirements engineering (RE) and object-oriented conceptual modelling with the objective of leveraging MDD capabilities. The current state of the art on modelling methods and code generation tools will be discussed to explore different ways to match an information system with business requirements. Concrete principles, concepts and common practices of MDD will be presented with a special focus on model-driven requirements engineering, meaning by it how business process models and requirements models can be embedded in a complete MDD process. As a practical application, a specific method and notations are explained, but the ultimate goal is that assistants are able to apply this knowledge to their own contexts, to either industrial practice or academic research.

Bio:

Fulll Professor and Director of the Research Center on „Métodos de Producción de Software (PROS)" at the Universidad Politécnica de Valencia (Spain). He received his Ph.D. in 1992. He was a researcher at HP Labs, Bristol, UK. He has published more than two hundred research papers in conference proceedings, journals and books, received numerous research grants from public institutions and private industry, and been keynote speaker at several conferences and workshops. Chair of the ER Steering Committee, and member of the SC of conferences as CAiSE, ICWE, CIbSE or RCIS, his research activities focus on conceptual modeling, web engineering, requirements engineering, information systems, and model-based software production. He created the object-oriented, formal specification language OASIS and the corresponding software production method OO-METHOD. He led the research and development underlying CARE Technologies that was formed in 1996. CARE Technologies has created an advanced MDA-based Conceptual Model Compiler called OlivaNova, a tool that produces a final software product starting from a conceptual schema that represents system requirements. He is currently leading a multidisciplinary project linking Information Systems and Bioinformatics notions, oriented to designing and implementing tools for Conceptual Modeling-based interpretation of the Human Genome information.

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Modelling for Ambiance Assistance
Prof. Dr. Heinrich C. Mayr, Alpen-Adria-Universität Klagenfurt

Abstract:

Ambient assistance is a continuously growing field in ICT: Based on smart sensors, life video analysis techniques as well as speech recognition and text-to-speech applications various kinds of human centered assistance become feasible and affordable. The range of applications is broad and covers everyday situations in private and business environments as well as support for people with special needs. Consequently, Ambient Assistance is a challenging and promising field for computer scientists, software engineers and information technicians in both, research and application, with lots of questions to answer and technical solutions to find. Since dealing with the support of humans, it is an interdisciplinary field affecting Psychology (activity theory, mental behavior etc.), Neurology, Medicine, Law (privacy, data security), Philosophy (ethics), Domotics (home automation systems) and others more. Models play a key role in ambient assistance systems as they act as the integral means for data and knowledge acquisition, representation, evaluation and exchange for the various system components. We will start our lecture with a short overview of already existing best practice examples and then work out the key notions and concepts that form the basis of modeling endeavors in that field. Based here-on, we will discuss the objectives, concepts and elements of the "Human Cognitive Modeling Language" HCM-L, which was developed in the "Human Behavior Monitoring and Support" project HBMS. Deeper insight will be gained in the afternoon Parallel Working-Groups that are headed by members of the Application Engineering Research Group: Dr. Fadi Al-Machot, Assoc.Prof.Dr. Christian Kop, Dr. Judith Michael, Assoc.Prof.Dr. Vladimir Shekhovtsov, and Dr. Claudia Steinberger.

Bio:

Heinrich C. Mayr has been a full professor of Practical Computer Science at Universität Klagenfurt since 1990 leading the Application Engineering Research Group. Until then he was an assistant professor at the University of Karlsruhe (today: KIT), visiting professor for database technology and information systems at several universities, and CEO of a German software company. He received his doctorate in applied mathematics from the University of Grenoble in 1975. His research is documented in over 190 publications and includes information system design methodologies, requirements and model engineering, and knowledge management. He has held, amongst other functions, that of Vice President of the Council of European Professional Informatics Societies (CEPIS) and President of the Gesellschaft für Informatik (GI). Heinrich Mayr served for 8 years as Dean of the Faculty of Economics, Business Administration and Informatics, and for 6 years as Rector of the University. Currently he is editor in chief of the GI-Edition "Lecture Notes in Informatics", council member of the Carinthian College of Education, chairman of the scientific council of the Software Internet Cluster SIC, Member of the Technical Committee "Wirtschaftsinformatik" of the German Accreditation Organisation ASIIN, and Chairman of the Supervisory Board of Stadtwerke Klagenfurt. Awards: Honorary Doctor degree of the National Technical University of Kharkiv (2001), GI Fellow (2009), Honored Professor of Sciences of Kherson State University (2012), Golden Medal of the capital of Carinthia, Klagenfurt (2013), and ER Fellow (2013).

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Modelling Knowledge Action and Time: Action Theories and Their Application in Dynamic Uncertain Domains

Prof. Dr. Dimitris Plexousakis, University of Crete and FORTH-ICS
Dr. Theodore Patkos, FORTH-ICS

Abstract:

The modelling of knowledge, action and time is a topic of current research within the broader domain of knowledge representation and reasoning. The course will focus on declarative approaches for modelling and reasoning with change, paying particular attention to the integration of knowledge and action (by means of artificial software agents). As time is inherent in any type of activity and process, the course will also deal with the representation of temporal properties that characterize the occurrence of actions and the knowledge they generate. Practical aspects of reasoning about knowledge action and time in the context of agent-based systems, ambient intelligence and cognitive robotics will be exposed in addition to the theoretical frameworks. Students will also have the ability to conduct exercises with software implementing a fully-axiomatized event-based formalism, in order to address reasoning problems involving aspects such as commonsense reasoning and planning, cast in the context of ambient environments and cooperating intelligent agents.

Bio:

Dimitris Plexousakis is a Professor of Computer Science at the Univ. of Crete and Head of the Information Systems Lab. He obtained a PhD in Computer Science from the Univ. of Toronto in 1996. His research interests lie in the areas of Conceptual Modeling, Knowledge Representation and Reasoning; Formal models and query languages for the Semantic Web; process and service modelling. He has extensive experience in coordinating and participating in National and European Projects and over 150 publications in peer-reviewed journals and conferences.

Theodore Patkos is a postdoctoral researcher at FORTH-ICS. He holds a PhD in Computer Science from the University of Crete since 2010 studying formal methods for commonsense reasoning in dynamic environments and their application to Ambient Intelligence domains. His research interests include knowledge representation and non-monotonic reasoning with emphasis on action languages, contextual and commonsense reasoning, multi-agent systems, argumentation and formal knowledge representation models for the Semantic Web.

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Crosscutting Issues

Process Modelling for Distributed Mobile Systems

Prof. Dr. Moon Kun Lee, Chonbuk National University

Abstract:

Generally formal methods can be classified into three categories: logic, automata and process algebra. Among them, process algebra can be considered most suitable for modelling distributed mobile systems, due to the notion of concurrency, distribution, movement, interaction and control of processes, as well as temporality. The most well-known process algebras in this category are CCS, π-Calculus, Mobile Ambient, ACSR, etc. In the lecture, the basic criteria for concurrency, distribution, movement, interaction and control will be discussed and analysed in the modelling perspective. The discussion and analysis will include the basic laws and propositions to describe the basic properties of the systems and their behaviours, especially based on strong and weak equivalences. The efficiency and correctness of the modelling will be demonstrated with railroad-crossing systems examples. Besides, some limitations and possible extensions of the algebras will be discussed, such as, visibility of nondeterminitic concurrency, synchronousness, temporality, etc. At the end, the main issues in my research topic on the algebras will be introduced with a new algebra called, δ-Calculus.

ditributed real-time systems, formal methods - developed ATM, CARDMI and Onion, behaviour engineering - developed Behavior Ontology with n:2-Lattice, etc. Currently focused on collective behaviour engineering for distributed mobile systems with δ-Calculus, to be implemented in

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Bio:

Currently, Prof. in Division of Computer Science and Engineering in Chonbuk National Univeristy, Republic of Korea. Received Bachelor degree in Computer Science, Pennsylvania State University, USA; Master degree in Computer & Information Science, The University of Pennsylvania, USA, Analysis of Parallelism for MODEL Equational Language, advised by Prof. Noah Prywes; Ph.D. degree in Computer & Information Science, The University of Pennsylvania, USA. An Environment for Understanding Real-time Software, advised by Prof. Noah Prywes and Prof. Insup Lee. Worked at CCCC, USA, as a Computer Scientist; Developed SRE(SW Re/reverse-engineering Environment); Applied to modernization of legacy OS and SW from US Navy at NSWC. Main research interests are SW round-trip engineering,

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Schedule

First Week:

Time	06.07.2014	07.07.2014	08.07.2014	09.07.2014
09:00 - 10:30	Participants Arrival	**Welcome and Introduction** H.C. Mayr, D. Karagiannis	**A Method for Designing Domain-Specific Modelling Languages** U. Frank	**Business Decision Modelling** J. Vanthienen
10:30 - 11:00				
11:00 - 12:30		**Next Generation Modelling Enterprises: Foundations** D. Karagiannis	**Goal-Modelling: Organization Theory, Domains-Specific Modelling and Applications** S. Strecker	**Business Process Management and Ontologies as an Application Domain for Meta-Modelling** Hans-Georg Fill
12:30 - 14:00				
14:00 - 15:30		*Foundations Parallel Working-Groups* Lead: D. Karagiannis	*Domain-Specific Modelling Parallel Working-Groups* Lead: S. Strecker	*Foundations Parallel Working-Groups* Lead: H.G. Fill
15:30 - 16:00				
16:00 - 17:30		**Modelling Business Applications with REA-Patterns** L. Zhao	**Ontological Foundations for Conceptual Modelling** G. Guizzardi	**VSM and Enterprise Architecture: Patterns-based Requirements Acquisition** M. Kirikova

Second Week:

Time	13.07.2014	14.07.2014	15.07.2014	16.07.2014
09:00 - 10:30	Cultural Activities	**Conceptual Modelling: The Role of Formal Calculi** W. Reisig	**Domain Specific Modelling** M. Rossi	**Next Generation Modelling Enterprises ... a Business Perspective** G. Bohoris, E.Vorria
10:30 - 11:00				
11:00 - 12:30		**Modelling with the eGPM Method** H. Züllighoven	**Security Management Processes and Procedures** N. Polemi	**Japanese Creative Services** Y. Hara
12:30 - 14:00				
14:00 - 15:30		*Technology Parallel Working-Groups* Lead: H. Züllighoven, S. Hofer	*Technology Parallel Working-Groups* Lead: N. Polemi	*Cross-Cutting Issues Parallel Working-Groups* Lead: H. Masuda
15:30 - 16:00				
16:00 - 17:30		**Modelling Aspects of Enterprise Transformation Management** R. Winter	**Process Modelling and Business Intelligence** W. Grossmann	**Multi-level Meta-Modelling** M. Jeusfeld

10.07.2014	11.07.2014	12.07.2014
From Requirements to Code: A Full Model-Driven Development Perspective O. Pastor	**Process Modelling for Distributed Mobile Systems** M. Lee	
Break		
Modelling for Ambiance Assistance H.C. Mayr	Group Presentations	Cultural Activities
Lunch		
Application Domains *Parallel Working-Groups* Lead: H.C. Mayr	Group Presentations	
Break		
Modelling Knowledge Action and Time: Action Theories and Their Application in Dynamic Uncertain Domains D. Plexousakis, T. Patkos	**OMiLAB Presentation and Wrap-up** H.C. Mayr, D. Karagiannis	

17.07.2014	18.07.2014	19.07.2014
Compositional Modelling Language Development B. Rumpe	**From Model-Based to Model-Integrating Software** J. Ebert	
Break		
Business Processes for Business Communities A. Oberweis	**Requirements Engineering: A Modelling View** P. Loucopoulos	Participants Departure
Lunch		
Cross-Cutting Issues *Parallel Working-Groups* Lead: A. Koschmider	**Examinations**	
Break		
Ontology Modelling with Description Logics U. Reimer	**Modelling Collaborative Enterprise Networks** L. Camarinha-Matos	

Conceptual Modelling: The Role of Formal Calculi
Prof. Dr. Wolfgang Reisig, Humboldt University Berlin

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Abstract:

Modelling Methods are frequently classified as informal, semiformal or formal, respectively. Each of the three classes has its particular advantages. In this contribution we focus on formal methods, and survey their common mathematical basis. Hence, instead of discussing subtle differences of models, we show what they have in common. In detail we separate three aspects:

1. Behavioural models: automata, transition systems, MSC, scenarios, finite and infinite behaviour, inductive invariants, simulation and bisimulation, process algebras, Petri nets, BPMN.
2. Data depicting models: signatures, sigma structures, terms, quantors, first order logic, ASM, Z, high level Petri nets.
3. Properties of models: composition and refinement, temporal logic, model checking.

Participants at this course will be able to understand the essentials of the many variants of modern techniques and corresponding tool based analysis methods for enterprise modelling.

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Bio:

Wolfgang Reisig is a full professor at the Computer Science Institute of Humboldt-Universität zu Berlin, Germany. Prof. Reisig is the speaker of the PhD school Service-oriented Architectures for the Integration of Software-based Processes, exemplified by Health Care Systems and Medical Technology (SOAMED) Prof. Reisig is a member of a member of the European Academy of Sciences, Academia Europaea. He published and edited numerous books and articles on Petri Net Theory and Applications. He is a Member of the Petri Net Conference Steering Committee since 1982 and a co-editor of the journal „Software and Systems Modeling".

Modelling with the eGPM Method
Prof. Dr.-Ing. Heinz Züllighoven, Universität Hamburg

Abstract:

The example-based business process modelling method (eGPM) is a visual approach to model selected business processes and their IT-support. The models are easy to understand for people in different departments, business organization and its specialists alike. The method aims at common understanding and communication about the processes which are modelled. Characteristics of the eGPM method are: (a) cooperative business processes are modelled as "cooperation pictures" based on selected scenarios, (b) simple pictograms make models easy to comprehend, (c) processes are structured along the lines of "who makes what with whom". The initial lecture will present the conceptual basis of the eGPM approach, putting business process modelling into the context of application-oriented software development. It will characterize software development as a learning and communication process with a strong need for feedback among all parties concerned. The basic principles and concepts of eGPM approach will be explained. The tutorial will provide hands-on experience with the eGPM tool. Examples from different application domains and usage contexts will show the usability of eGPM in many professional contexts.

Bio:

Heinz Züllighoven, graduted in Mathematics and German Language and Literature, holds a PhD in Computer Science. Since October 1991 he is professor at the Computer Science Department of the University of Hamburg and head of the attached Software Technology Centre. He is one of the original designers of the Tools & Materials approach to object-oriented application software and the eGMP approach. Since 2000, Heinz Züllighoven is also one of the managing directors of WPS Workplace Solutions Ltd. He has published a number of papers and books on various software engineering topics. Among his current research interests are a revision of the Tools & Materials approach in the light of new interaction means of current frontend technologies and the architecture of large industrial software systems.

In addition, he and his co-researchers are further developing the tool support for the eGPM approach.

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Modelling Aspects of Enterprise Transformation Management

Prof. Dr. Robert Winter, University of St. Gallen

Abstract:

Enterprise Modelling can be conducted in an inside-out mode (i.e. representing 'what is there', e.g. by a federated set of models of the enterprise) or in an outside-in mode (i.e. representing 'what is needed' in different ways for certain stakeholders or stakeholder groups). Possible use scenarios for an outside-in perspective are, among others, IT consolidation management, business continuity management, risk management, or enterprise transformation programs. Due to the growing importance of transformations, e.g. in the context of digital business, this course focuses on 'transformation' as enterprise modelling application scenario. Transformation types are explained and respective modelling requirements/capabilities are discussed. As a special type of models which are important in the context of transformations, boundary objects are discussed.

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Bio:

Prof. Dr. Robert Winter is tenured chair of business & information systems engineering at University of St. Gallen (HSG), director of HSG's Institute of Information Management, founding academic director of HSG's Executive Master of Business Engineering programme and academic director of HSG's Ph.D. in Management programme. He received Master degrees in business administration and business education as well as a doctorate in social sciences from Goethe University, Frankfurt, Germany. After eleven years as a researcher and deputy chair in information systems in Germany, he joined HSG in 1996. His research areas include situational method engineering, enterprise architecture management, transformation management, healthcare management and corporate controlling systems. He is vice editor-in-chief of „Business & Information Systems Engineering" (formerly „Wirtschaftsinformatik"), senior associate editor of „European Journal of Information Systems" and member of the editorial boards of journals like „Information Systems and e-Business Management" or „Enterprise Modelling and Information Systems Architectures".

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Domain Specific Modelling
Prof. Dr. Matti Rossi, Aalto University

Abstract:

The course introduces students to developing new modelling languages through Domain Specific Modelling approach with MetaEdit+ platform. During this course the students will get an overview of working with MetaEdit+ when developing DSM's and then develop support environment for their own modelling language. The tool allows language developers to rapidly build and evolve their methods and then try them out on the fly.

Bio:

Matti Rossi is a professor of information systems at Aalto University School of Business. He has worked as research fellow at Erasmus University Rotterdam, visiting assistant professor at Georgia State University, Atlanta and visiting researcher at Claremont Graduate University. He has been the principal investigator in several major research projects funded by the technological development center of Finland and Academy of Finland. He was the winner of the 2013 Millenium Distinction Award of Technology Academy of Finland for open source and data research. His research papers have appeared in journals such as MIS Quarterly, Journal of AIS, Information and Management and Information Systems. He has been a senior editor of JAIS and Database, and he is the editor in chief of Communications of the Association for Information Systems. Matti Rossi is a member of IEEE, ACM and AIS.

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Security Management Processes and Procedures

Ass. Prof. Nineta Polemi, University of Piraeu

Abstract:

The basic concepts of security and privacy will be presented. The various standards (e.g. ISO27001, 27002, NIST) and methodologies (e.g. OCTA-VE, CRAMM) used for security management will be analysed as well as the security procedures. Specific case studies will be analysed.

Bio:

Associate Professor Nineta Polemi has obtained the Degree in Applied Mathematics from Portland State University (USA), Ph.D. in Applied Mathematics (Coding Theory) from The City University of New York (Graduate Center). She held teaching positions in Queens College, Baruch College of City University of New York and the State University of New York at Farmingdale. She acted as President of the BoD and Technical Manager in the security consultancy company Expertnet. She is currently an Associate Professor in the University of Piraeus (Dept. of Informatics) teaching cryptography, security of ICT systems, port security and e-business. Her current research interests are in the fields of security and collaborative e-services. She has over one hundred publications in the above areas and has organised numerous security scientific events. She has received many research grants from various organizations such as the Danish Research Foundation, MSI Army Research Office/Cornell University, IEEE, State University of New York (SUNY), and The Graduate School of City University of New York (CUNY). She has been project manager (PM) / technical manger (TM) in security projects of various programmes such as National Security Agency (NSA), Dr. Nuala McGann Drescher Foundation, Greek Ministry of Defence, INFOSEC (Biometrics Study, EUROMED-ETS, BESTS), TELEMATICS for Administrations (COSACC) and the European Commission (E.C.) IST Programme (HARP, BEE, SEED, WebSig, TSEC, CORAS, RESHEN, SEED, La Mer, SECRETS, INTELCITIES, SELIS, SWEB, NetShare, Eurogene, ImmigrationPolicy2.0). She participated in E.C. security projects of programs (COST, ACTS, ICT and NATOs). She has acted as an expert and evaluator in the E.C. and the European Network and Information Security Agency (ENISA).

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Process Modelling and Business Intelligence
Prof. Dr. Wilfried Grossman, University of Vienna

Abstract:

Process Modelling and Business Intelligence are two important areas in business informatics, which are treated often rather separated from each other. Looking at the literature and the activities in the two areas shows that process modelling takes a look at the business from a more production oriented view, whereas business intelligence activities emphasise more the role of the customer in the business process. In this lecture we want to show how one can take a unified view onto these two approaches and how such a view supports business activities. For demonstration we use as business case a marketing campaign and show how one can use business analytics for detailed specification of the business process and how this specification influences formulation of the business goals. The proposed method combines ideas of business process modelling with data mining formats and shows how different analytical techniques can be integrated using the ADOxx platform. Main emphasis is on methods for data provisioning and data understanding which extend traditional approaches by quality computations.

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Bio:

Wilfried Grossmann is retired professor at the faculty of Computer Science at the University Vienna. He got his PhD at the university Vienna in mathematics and has worked and published in the areas Information Management, Mathematical Statistics, Applied Statistics, Statistical Computing, Operations Research, and Metadata. In connection with his research he has participated in European research programs in Official Statistics (EUROSTAT) as project coordinator and as work group leader. From 2005-2010 he was chair of the Quality Board of Statistics Austria and vice chair of the Austrian Statistics Council.

At the moment his main interests are Business Analytics, Applied Statistics and Information Management.

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Next Generation Modelling Enterprises ... a Business Perspective

Prof. Dr. George Bohoris and Dr. Evanthia Vorria, University of Piraeus

Abstract:

To identify some of the cultural difficulties between IT & business perspectives on the subject of Enterprise Modelling, to highlight some of current trends & difficulties, to offer a „hands on„ business process mapping opportunity, incorporating some of the common, business related process attributes.

Bio:

Prof. Dr. George Bohoris serves as a professor in Total Quality Management and as Director of the Department of Business Administration at the University of Piraeus in Greece. Currently he is also the Chairman of the National Council of Quality in Greece. Previously he was a lecturer in Operations Management and Director of the M.Sc.-Program in Quality and Reliability Management at the School of Manufacturing and Mechanical Engineering of the University of Birmingham in the United Kingdom.

Having graduated with an M.Sc.s in Mechanical Engineering and Business Administration, Dr. Bohoris has graduated with a Ph.D. in Production & Operations Management. He has published works in several European scientific journals and been a contributing member to several international conferences.

Dr. Evanthia Vorria is a chemical engineering who has graduated with an MBA in TQM and a Ph.D. in Business Administration. Currently she serves as an assessor for the "Recognized for Excellence" – 2nd quality level of the European Business Excellence Model of the European Foundation for Quality Management (EBEM-EFQM). She is also a Certified Inspector of ISO 9001:2008 and ISO 14001:2004 and freelance business consultant in TQM and Business Excellence. She has published several articles in European scientific journals and international conferences.

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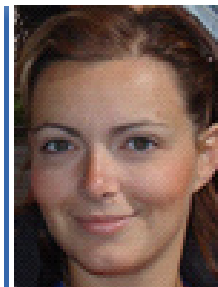
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Japanese Creative Services – Its Concept and Framework –

Prof. Dr. Yoshinori Hara, Kyoto University

Abstract:

We define Japanese creative services and discuss how they have been sustained successfully. There are many "Shinise" (shops of long standing) service companies in Japan that are quite unique compared to the companies located in any other geographical region. They typically have anecdotal values based on nature and seasons, various types of culture, histories, and/or lifestyles. They also have the mind-set of "Omotenashi," Japanese hospitality, and a framework to evaluate and inherit their service competence. We will examine these capabilities with some concrete examples. We then explain the mechanisms of the sustainability and scalability of Japanese Creative Services. A statistical analysis comparing the Shinise companies in the Osaka region with those in the Kyoto region is reported. An exclusive inheritance mechanism designed towards a designated successor and the separation of the authority from technology inheritance can paly an important role for the organizations to provide creative services. In order to enhance the values of the Japanese creative services, a systematic analysis from the viewpoint of service science and innovation will be essentially important. We believe that this kind of approach will contribute to creating new values within the field of service science and for value-added global services.

Bio:

Dr. Yoshinori Hara serves as professor, Graduate School of Management, Kyoto University, since April 2006, when the graduate school was established. His current research focus includes innovation management, service and design management, and open innovation with IT frameworks.

Prior to joining Kyoto University, he held various research and key management positions at R&D organizations in NEC Corporation, for 13 years in Japan, and for 10 years in the Silicon Valley, California, USA. He was responsible for conducting research and development on advanced ubiquitous computing including Web/Hypermedia systems, mobile & embedded systems, adaptive user interfaces, advanced information retrieval technologies, system security & reliable systems, etc.

From 1990 to 1991, he was a Visiting Researcher at the Department of Computer Science, Stanford University. He received his B.E. and M.E. from University of Tokyo, and his Ph.D. from Kyoto University.

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Multi-level (Meta)-Modelling
Dr. Manfred Jeusfeld, University of Skövde

Abstract:

Conceptual models refer to objects, classes, meta classes, and so forth. Models at the higher abstraction levels constrain the lower-level models. We investigate the mechanism proposed for exploiting multi-level models, in particular deep instantiation and rules whose variables range over objects and classes at the same time.

In both cases, knowledge about objects is encoded at a level beyond the class level, hence applies to any class instantiated from the "rich" meta class level. We demonstrate as example the definition of traceability of model elements across multiple modelling languages. We also review deep instantiation and provide a customizable implementation.

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Bio:

Manfred Jeusfeld studied computer science from 1980 to 1986 at the University of Technology Aachen (RWTH), Germany. In 1992 he received his Doctoral degree in Natural Sciences from the University of Passau. In 1992 he returned to the RWTH Aachen as a senior researcher of the Information Systems Institute (Informatik V). He is the principal developer of the ConceptBase system, which is now used by several hundreds institutes and companies world-wide for designing information systems and metamodeling. From 1997 to 2013, he was assistant professor in the department Information Management (IM) of the Tilburg University, The Netherlands. Since 2013 he is lektor at the department of information technology, University of Skövde, Sweden. His research covers cooperative conceptual modeling, data warehouse quality management, metamodeling, method engineering, and repository systems. He is member of the ER steering committee (2011-2014) and associate information director for ACM SIGMOD. He is also the publisher of CEUR Workshop Proceedings, a publication service for open-access proceedings of scientific workshops and conferences.

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Compositional Modelling Language Development
Prof. Dr. Bernhard Rumpe, RWTH Aachen University

Abstract:

We examine the current state and problems of modelling enterprises as well as software systems and discuss a number of approaches to tackle those. In particular, we discuss how to make use of models in large development projects, where a set of heterogeneous models of different languages needs is developed and needs to fit together, e.g. describing high-level structures of the organisation, business processes, data structures, automatically executable functions, constraints and so on. A model based development process (both with UML as well as a domain specific modelling language (DSML)) heavily relies on modelling core parts individually and composing those through generators to early and repeatedly cut code and tests from these models. We discuss in detail compositionality on models and heterogeneous modelling languages and how it supports agile evolution of such infrastructures.

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Bio:

Bernhard Rumpe is chair of the Department for Software Engineering at the RWTH Aachen University, Germany. Before that he chaired the Software Engineering Institute at the TU Braunschweig. He made his Ph.D. and Habilitation an the TU Munich. His main interests are software development methods and techniques that benefit form both rigorous and practical approaches. This includes the impact of new technologies such as model-engineering based on UML-like notations and domain specific languages and evolutionary, test-based methods, software architecture as well as the methodical and technical implications of their use in industry. He has furthermore contributed to the communities of formal methods and UML. Since 2009 he started combining modelling techniques and Cloud Computing. He is author and editor of eight books and Editor-in-Chief of the Springer International Journal on Software and Systems Modeling (www.sosym.org).

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Crosscutting Issues

Business Processes for Business Communities
Prof. Dr. Andreas Oberweis and Dr. Agnes Koschmider, Karlsruhe Institute of Technology
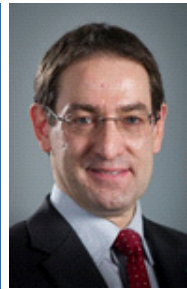
Abstract:

Several languages have been suggested for modeling business processes. Practice shows, however, that a powerful modeling language alone is not enough. Users require guidance and assistance in the preparation of models, that is, during application of the language. In this course the students will learn the Horus⃞ Method. This method defines various stages of modeling and is a recipe-like guideline that has been proven in practice. In practical exercises to this lecture students will collaborate in a Web 2.0-based social network, to define business objectives, strategies and business processes together and will elaborate a common understanding of an organization.

Bio:

Andreas Oberweis is Professor for Applied Informatics at the Karlsruhe Institute of Technology (KIT) since 2003. Since 2004 he is also Director at the Research Center for Information Technology (FZI) Karlsruhe in the Research Group Software Engineering. He received a Doctoral Degree in Informatics from Universität Mannheim in 1990 and a Habilitation Degree in Applied Informatics from Universität Karlsruhe in 1995. From 1995 to 2003 he was Professor for Information Systems Development at Goethe-Universität Frankfurt/Main. His research and teaching interests are in the field of business process engineering and information systems development. He is co-founder of PROMATIS software GmbH (1994) and HORUS software GmbH (2009) in Ettlingen. Since 2004 he is Program Director of the Master Program Service Management and Engineering at the Hector School of Engineering and Management. Since 2014 he is Vice President of the Gesellschaft für Informatik (GI).

Agnes Koschmider is a post-doctoral researcher at the Institute of Applied Informatics and Formal Description Methods (AIFB) at the Karlsruhe Institute of Technology (KIT). In 2007 Agnes received a doctoral Degree in Applied Informatics from University Karlsruhe. She studied from 1998-2003 and, received her Diploma degree 2003 in Business Administration from the Goethe University Frankfurt/Main. Her current research concentrates on process model reuse, modeling support techniques and empirical business process modeling. In September 2013 she was named a junior fellow of the German Informatics Society (Gesellschaft für Informatik).

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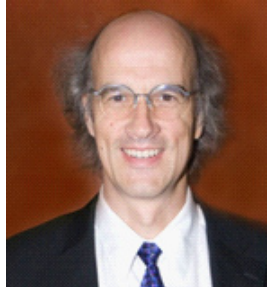KIT, Germany
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Crosscutting Issues

Ontology Modelling with Description Logics
Prof. Dr. Ulrich Reimer, University of Applied Sciences St. Gallen

Abstract:

After a short introduction into what an ontology is the course will focus on modelling ontologies using description logics. We will explain the rationale behind the use of a mathematical formalism like description logics as the means to model ontologies. The model-theoretic semantics underlying description logics lays the foundation for terminological reasoning from which various added-value services can be derived. Moreover, since representing ontologies with description logics makes them machine-understandable the ontologies can be easily shared and utilized by different applications, i.e. the semantics is inherent in the representation and does not reside in the programs interpreting the representations. The course will give examples from various application areas how ontology modelling can be utilized.

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Bio:

Ulrich Reimer studied computer science and received his doctorate in 1987 at the Information Science Dept. of the University of Konstanz with a thesis on formal ontologies for natural language understanding. From 1987 to 1991 he was assistant professor at the University of Konstanz before becoming the head of the IT R&D group of Swiss Life, the biggest life insurance company in Switzerland, in 1991. In his 10 years at Swiss Life he was responsible for large-scale research projects in the areas of Semantic Web, knowledge management, data mining and e-tutoring. Subsequently he joined an IT and consulting company where he was working on enriching Web-based information systems with Semantic Web functionality. In 2005 he changed to his current position at the Institute of Information and Process Management at the University of Applied Sciences St. Gallen where he is responsible for applied R&D projects. His current research activities are primarily in the application area of e-health and include semantic technologies, knowledge extraction from texts, knowledge management, and model-driven information systems.

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Crosscutting Issues

From Model-Based to Model-Integrating Software
Prof. Dr. Jürgen Ebert, University of Koblenz-Landau

Abstract:

A strong focus of Software Engineering research in modelling is on software for models (e.g., modeling tools) as well as on models for software (e.g., in tool construction or reverse engineering). This talk gives a personal overview of models in Software Engineering, which started with early visual notations via a plethora of modelling languages and editors and lead to unifying approaches like UML (on the language side) and generic metaCASE software (on the tool side). In this era, foundational work on model representations, meta-modelling, constraint descriptions, and semantics as well as on classification of modelling languages into a few modelling paradigms provided a deeper understanding of the world of modelling in general. Adding the ability for code generation and model transformation, the process of software development was automated further by several environments, some of which even provide additional services like model evolution, model querying, model execution, or model comparison. Integrating these capabilities into a crossplatform and crosslanguage infrastructure may now lead to software components which contain code and models as equal-level and cooperating parts at runtime, making software evolution easier to handle and leveraging, e.g., the development of adaptive software or dynamic product lines.

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Bio:

Jürgen Ebert is a professor of software engineering at the University of Koblenz-Landau in Koblenz since 1982. He got his PhD in mathematics from the University of Münster and his habilitation in computer science from the University of Osnabrück, both in Germany. He retired in 2014.

He has a long record of work related to modeling in the context of software engineering. His research is focused on design and construction of generic tools, especially using graph-based approaches. In the last two decades, he worked primarily on the foundations of modelling and on the application of modelling in software reengineering, and software architecture.

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Requirements Engineering: Modelling Enterprise Capabilities

Prof. Dr. Pericles Loucopoulos, University of Manchester and Harokopio University of Athens

Abstract:

In today's dynamic business environment, emergent application software is regarded as a key component in the service industry. The effective and efficient development of such software systems can have a major impact on the economic value of digital companies. One important factor in achieving this is to ensure that the design and evolution of the software system can comply with the design and evolution of the enterprise. To this end, focus on the development lifecycle model has shifted towards dynamic configuration using approaches such as agile methods, method-driven development and software-oriented architectures. These efforts are complemented by a response to adaptation at operational level by exploiting context-awareness. However, there still exists a gap between enterprise requirements and software solutions. This talk will focus on a relatively recent development in the field based on the notion of 'business capability'. The notion of 'capability' has been traditionally used in non-technical domains such as in socio-economic analyses, organizational studies, and strategic management. In information system engineering capability has been examined in the context of information system agility, service-orientation, software process improvement, and business-IT alignment. This talk will outline the field, introduce a development framework, including meta-models and process phases, provide examples from a use-case and define a number of challenges for researchers and practitioners alike.

Bio:

Professor Pericles Loucopoulos holds appointments at the Manchester Business School of the University of Manchester (UK) and at Harokopio University of Athens (Greece). His research has been supported by numerous research grants supporting over 20 research projects, most them in collaboration with industry. He is the editor-in-chief of the Journal of Requirements Engineering and also serves as Associate Editor on 15 other journals. His research focus is on the use of conceptual modelling for achieving alignment between enterprise and information technology systems. He is a member of a number of international professional bodies, has served as General Chair or Programme Chair of many international conferences. He has been awarded the Edelman Laureate medal and the President's Medal of the UK OR Society, two of the top distinctions in the field of Operations Research and Management.

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Modelling Collaborative Enterprise Networks
Prof. Dr. Luis Camarinha-Matos, Universidade Nova de Lisboa

Abstract:

Participation in networks has nowadays become very important for any enterprise or organization striving to achieve a differentiated competitive advantage. Collaboration is a key issue to rapidly answer market demands, through sharing competencies and resources. In fact, collaborative networks manifest in a large variety of forms, including virtual organizations, virtual enterprises, dynamic supply chains, professional virtual communities, collaborative business ecosystems, etc. A large body of empiric knowledge related to collaborative networks is already available, but these organizational forms are complex entities whose proper understanding, design, implementation, and management require the integration of different modelling perspectives. In this context, ARCON is introduced as a comprehensive modelling framework that copes with the endogenous (structural, componential, functional, and behavioural dimensions) and exogenous interactions (market, support, societal, and constituency dimensions) perspectives, as well as the life-cycle of the network and the modelling intent.

Bio:

Prof. Luis M. Camarinha-Matos received his PhD in Computer Engineering from the New University of Lisbon in 1989, and he is currently professor of Robotics and Computer Integrated Manufacturing at the same university. He is co-founder of the Centre for Technology and Systems and coordinator of the CoDIS Group (Collaborative networks and Distributed Industrial Systems) of Uninova. He has participated in many international and national projects, both as a researcher and as a coordinator. He has coordinated various successful projects in the area of distributed systems, virtual organizations, ambient assisted living / ICT and ageing (PRODNET II, THINKcreative, VOmap, TeleCARE, ECOLEAD, ICT ePAL, GloNet) and projects of cooperation between European Union and Latin America, (Cimis. net, FlexSys, SCM+ and MASSYVE projects). He was founder and chairman of the IFIP COVE working group WG5.5, and also the founder and current chairman of SOCOLNET (Society of Collaborative Networks). He has also coordinated several other national projects, and has been a member of various international projects. Prof. Camarinha-Matos has been involved in the organization and program committees of more than 300 international conferences, with particular reference to the IFIP BASYS series on balanced automation systems, IFIP PRO-VE series on infrastructures for virtual enterprises (as founder, and Program Chair), and IFIP/IEEE DoCEIS series (Doctoral Conference on Computing, Electrical and Industrial Systems). He has edited various issues of journals and books, and he has more than 370 publications in Journals and conferences proceedings. He has also been reviewer and evaluator of projects for the European Commission and other programs (Portugal, Brazil, Ireland, Czech Republic, Norway, Hong Kong, Estonia, United Arab Emirates, and Argentina). He has also got a Doctor Honoris Causa by the University "Politehnica" of Bucharest in 2009.

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