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Keynote Presentations

Paul Daugherty
Chief Technology Architect, Accenture
Wednesday, March 4, 9:00 am - 10:30 am

Biography – Paul Daugherty is Accenture's Chief Technology Architect, and also serves as Managing Director of Accenture's Custom and Emerging Systems Integration (SI) business. In the Chief Technology Architect role, Paul is responsible for shaping Accenture's architecture strategy and assets, and for managing over 3,000 technology architects who work around the globe and across industries implementing complex, leading-edge technology solutions for Accenture's clients. His current focus areas include Service Oriented Architectures, Software as a Service, Web 2.0, Cloud Computing, Legacy Renewal, Open Source, and Mobility.

As Managing Director of the Custom and Emerging SI business, Paul has responsibility for Accenture's Systems Integration business on custom platforms, industry and domain-specific software packages, and new/emerging technology platforms.

Prior to these roles, Paul led Accenture's Technology business in the Resources operating group, which serves clients in the utilities, energy, natural resources, and chemicals sectors. Paul has also been instrumental in leading Accenture initiatives in areas such as eCommerce, and more recently, CIO Agenda, which is focused on rapidly growing the architecture and innovation areas of Accenture's business.

Paul has worked with clients in many industries in areas such as complex systems delivery, infrastructure services, architecture, and IT strategy. Paul has also been involved in selling and delivering large Business Process Outsourcing (BPO) and IT Outsourcing (ITO) engagements.

Paul has a degree in Computer Engineering from the University of Michigan. He frequently speaks at conferences on industry and technology issues, and has published articles in a variety of publications. He is Chairman of the Advisory Board of the New York-based Academy of Information Technology, a non-profit organization that works on industry and technology issues, and has published articles in a variety of publications. He is Chairman of the Advisory Board of the New York-based Academy of Information Technology, a non-profit organization that works on industry and technology issues, and has published articles in a variety of publications.

The Future of Software Architectures for Large-Scale Business Solutions: Modularity, Scalability, and Separation of Concerns

Abstract – Modern software projects are of large scale, often involving years of development, tens of thousands of days of work effort, and millions of lines of code. This complexity is aggravated by the fact that development is often distributed over several geographic locations, as dictated by cost considerations, the availability of domain specialists, legal requirements, and other factors. Despite advances in development tools and techniques, software initiatives have lagged behind in utilizing novel software engineering methods and techniques effectively to reduce the complexity of large-scale software. The results can be seen in Corporate and Government IT budgets - based on Accenture and Industry research, IT cost overruns are still commonplace, and the cost to "keep the lights on" for fragile legacy applications typically consumes up to 60% IT budgets.

Increased adoption of advanced software engineering techniques holds great promise for solving these key business challenges. For example, modularization holds a promise in reducing complexity of software design by hiding low-level implementations in well-defined units of deployment. Specifically, vendors build platforms that allow architects to design large-scale systems that can be composed out of services on the fly. For example, JBoss built a platform that allows architects to seamlessly integrate Service-Oriented Architecture (SOA) with application and business-process management (BPM) in enterprise distributions. According to research with Accenture's CIO Council, at least 58% of global organizations are implementing or piloting SOA.

Proper separation of concerns is a key to effective modularization. While separation of concerns is more of art than science in the work of software architects, novel technologies that enable effective separation of concerns are gaining traction. Most recently Accenture used AOP on a government project to do audit tracking. It was very successful and the techniques are currently being incorporated in Accenture Delivery Architecture (ADA), which is a standards-based architecture used for very large scale software development. A large focus of our efforts is in making advanced software engineering techniques more "consumable" by across our network of developers - this is done through standardized architectures, reference applications, and training.

The talk will focus on progress that has been made, and challenges ahead in driving further business value through use of these types of techniques. In addition to the areas mentioned, we will focus on related issues such as: requirements traceability, automated software quality assurance, role of DSLs and MDA, and Agile techniques.

John A. Stankovic
BP America Professor, Department of Computer Science, University of Virginia
Thursday, March 5, 9:00 am - 10:30 am

Biography – John A. Stankovic received his Ph.D. from Brown University in 1979 and then served on the faculty of the University of Massachusetts at Amherst. He came to the University of Virginia as BP America Professor and Chair of the Department of Computer Science in 1997. Professor Stankovic is a Fellow of the IEEE, a Fellow of the ACM, and he served on the Computing Research Association Board of Directors for nine years. He received an IEEE Award for Outstanding Technical Contributions and Leadership in Real-Time Systems, and an Outstanding Scholar Award from the University of Massachusetts. He was Co-Founder and Co-Editor-in-Chief of the International Journal on Real-Time Systems, Editor-in-Chief of IEEE Transactions on Parallel and Distributed Computing, Associate Editor for ACM Transactions on Wireless Sensor Networks, Associate Editor for ACM Transactions on Embedded Systems, and Book Series Editor for Real-Time Systems.

Cyber Physical Systems: Aspects as a Basis for Robustness and Openness

Abstract – As discussed in a recent report for which I was a co-author, "as computers and communication bandwidth become faster and cheaper, computing and communication capabilities will be embedded in all types of objects and structures in the physical environment. Applications with enormous societal impact and economic benefit will be created by harnessing these capabilities in time and across space. We refer to systems that bridge the cyber-world of computing and communications with the physical world as cyber-physical systems (CPS). The internet transformed how humans interact and communicate with one another, revolutionized how and where information is accessed, and even changed how people buy and sell in the marketplace. Similarly, CPS will transform how humans interact with and control the physical world around us. Examples of CPS include medical devices and systems, aerospace systems, transportation vehicles and intelligent highways, defense systems,
robustness, and pervasive wireless access is opening these systems to unprecedented dynamic and non-deterministic influences." This talk will describe this new and emerging field called CPS. The talk will focus on what is new and why we need fundamentally new approaches to face robustness and openness challenges. Aspect-oriented programming will be proposed as a possible basis for key work in CPS.

Everyday Aspects

Abstract – Everyday, programmers perform software evolution tasks that require accessing information from, and often making changes to, multiple modules comprising the target software system. For some of these tasks, aspect-oriented programming languages provide a means of improving the modularization of the target system, making it easier to perform desired evolutionary changes. For other tasks, it can be either too difficult or considered too costly to use a language to describe the modularization associated with a task. In many of these cases, we have found it effective to infer a task-specific form of modularity based on how programmers interact with the source comprising the target system, making it easier to perform desired evolutionary changes. For some of these tasks, aspect-oriented programming languages provide a means of improving the modularization associated with tasks and improve programming productivity.

Everyday, information workers also perform tasks that require accessing information from, and often making changes to, documents spread across their computer desktops, their organization and the world. How do the tasks of these information workers compare to those of programmers? Could these workers benefit from expressing modularity across information using ideas from aspect-oriented languages? Could these workers benefit from task-specific modularity based on how they access documents and related artifacts?

This talk will consider how ideas from the aspect-oriented community can extend beyond the software domain to improve the interaction of information workers with digital information.

Biography – Gail Murphy is a Professor in the Department of Computer Science at the University of British Columbia. She joined UBC in 1996 after completing Ph.D. and M.S. degrees at the University of Washington. Before returning to graduate school, she worked as a software developer at a telecommunications company for five years. She also holds a B.Sc. degree from the University of Alberta. She works primarily on building simpler and more effective tools to help developers manage software evolution tasks. In 2005, she held a UBC Killam Research Fellowship and also received the AITO Dahl-Nygaard Junior Prize for her work in software evolution. In 2006, she received an NSERC Steacie Fellowship and the CRA-W Anita Borg Early Career Award. In 2007, she helped co-found and is currently Chair of the Board and COO of Tasktop Technologies Inc. In 2008, she served as the program committee chair for the ACM SIGSOFT FSE conference and received the University of Washington College of Engineering Diamond Early Career Award. One of the most rewarding parts of her career has been collaborating with many very talented graduate and undergraduate students.

Gail Murphy, Professor
Department of Computer Science, University of British Columbia
Friday, March 6, 9:00 am - 10:30 am
Tuesday, March 3

Registration (opens at 8am)
Location: Entry Hallway, Newcomb Hall 3rd Floor (entry on ground level from McCormick Drive, the main road through campus).

Workshops (9:00am through 5:30pm)

DSAL: Fourth Workshop on Domain-Specific Aspect Languages
Thomas Cleenewerck (Vrije Universiteit Brussel, Belgium), Johan Fabry (University of Chile, Chile), Anne-Françoise Le Meur (University of Lille, France), Jacques Noyé (École des Mines de Nantes, France), Éric Tanter (University of Chile, Chile)
Location: Room 389

EA: Workshop on Early Aspects
Alessandro Garcia (Pontifícia Universidade Católica do Rio de Janeiro, Brazil), Nan Niu (University of Toronto, Canada), Ana Moreira (New University of Lisbon, Portugal), João Araújo (New University of Lisbon, Portugal)
Location: Commonwealth

PLATE: Practices of Linking Aspect Technology and Evolution
Iris Groher (Johannes Kepler University Linz, Austria), Andy Kellens (Vrije Universiteit Brussel, Belgium), Christa Schwanninger (Siemens AG, Germany), Bram Adams (Queen’s University, Canada), Uwe Hohenstein (Siemens AG, Germany), Ademar Aguiar (Universidade do Porto, Portugal), Eddy Truyen (Katholieke Universiteit Leuven, Belgium)
Location: Board Room

Birds of a Feather (3:00pm through 5:30pm, with a break at 3:30 pm)

JBoss AOP
Kabir Khan (JBoss AOP Lead, JBoss, a division of Red Hat)
Flavia Rainone (JBoss AOP Developer, JBoss, a division of Red Hat)
Location: South Meeting Room

Note: Sign-up sheets for impromptu Birds of a Feather sessions will be at the registration area.

Wednesday, March 4

8:00 am Registration (opens at 8am) & Breakfast
Location: Entry Hallway, Newcomb Hall 3rd Floor (entry on ground level from McCormick Drive, the main road through campus). Breakfast will be served in the Main Lounge; Participants may eat in the Ballroom

9:00 am Welcome and Keynote
The Future of Software Architectures for Large-Scale Business Solutions: Modularity, Scalability, and Separation of Concerns
Paul Daugherty (Accenture, USA)
Location: Ballroom

10:30 am Break
Location: Main Lounge

Demo Madness (from 10:40am through 10:55am)
Andy Kellens (Vrije Universiteit Brussel, Belgium) – Demonstrations Co-Chair
Naoyasu Ubayashi (Kyushu Institute of Technology, Japan) – Demonstrations Co-Chair
Location: Ballroom

11:00 am Research Session 1: Programming Languages
Mehmet Aksit (University of Twente, The Netherlands) – Session Chair
Location: Ballroom

Dependent Advice: A General Approach to Optimizing History-based Aspects
Eric Bodden (McGill University, Canada), Feng Chen, Grigore Rosu (University of Illinois at Urbana-Champaign, USA)

The Dataflow Pointcut – A Formal and Practical Framework
Dima Alhadidi, Amine Boukhtouta, Nadia Belblidia, Mourad Debbabi, Prabir Bhattacharya (Concordia University, Canada)

Expressive Scoping of Distributed Aspects
Éric Tanter, Johan Fabry (University of Chile, Chile); Rémi Douence, Jacques Noyé, Mario Südholt (École des Mines de Nantes, France)

Demo Session 1A
Location: Room 389

D1: A GUI Tool for FODA Feature Diagrams
Shin Nakajima (National Institute of Informatics, Japan), Taimei Aoki, Katsunori Imai (GLATTs, Inc., Japan)

D2: MAJOR and CARAJillo: Aspect Weaving in the Java Class Library
Alex Villazón, Walter Binder, Philippe Moret (University of Lugano, Switzerland)

12:30 pm Lunch (provided to all registered participants)
Location: Lunch will be served in the Main Lounge; Participants may eat in the Ballroom

2:00 pm Research Session 2: Aspect Interference
Hridesh Rajan (Iowa State University, USA) – Session Chair
Location: Ballroom

A Graph-Transformation-Based Simulation Approach for Analysing Aspect Interference on Shared Join Points
Mehmet Aksit, Arend Rensink, Tom Staijen (University of Twente, The Netherlands)

The Art of the Meta-Aspect Protocol
Tom Dinkelaker, Mira Mezini, Christoph Bockisch (Technische Universität Darmstadt, Germany)

Flexible Calling Context Reification for Aspect-Oriented Programming
Alex Villazón, Walter Binder, Philippe Moret (University of Lugano, Switzerland)

Demo Session 2A
Location: Room 389

Iris Groher (Johannes Kepler University Linz, Austria), Christa Schwanninger (Siemens AG, Germany), Markus Vöelter (Independent Consultant, Germany)
D4: Building a Next-Generation Digital News Publishing Platform with AOSD
Steven Op de beeck, Dimitri Van Landuyt, Eddy Truyen, Wouter Joosen (Katholieke Universiteit Leuven, Belgium)

3:30 pm Break
Location: Main Lounge

4:00 pm Research Session 3: Software Architecture and Modeling
Mira Mezini (Technische Universität Darmstadt, Germany) – Session Chair
Location: Ballroom

Domain-driven Discovery of Stable Abstractions for Pointcut Interfaces
Dimitri Van Landuyt, Steven Op de beeck, Eddy Truyen, Wouter Joosen (Katholieke Universiteit Leuven, Belgium)

Aspect-Oriented Multi-View Modeling
Jörg Kienzle, Wisam Al Abed (McGill University, Canada); Jacques Klein (Université du Luxembourg, Luxembourg)

From Sequence Diagrams to Java-STAARS Aspects
Jon Oldevik, Øystein Haugen (Universitetet i Oslo, Norway)

Composing Architectural Aspects Based on Style Semantics
Christina Chavez (Universidade Federal da Bahia, Brazil); Alessandro Garcia (Pontificia Universidade Catolica do Rio de Janeiro, Brazil); Taís Batista, Marcel Oliveira (Universidade Federal do Rio Grande do Norte, Brazil); Claudio Sant’anna (Universidade Federal da Bahia, Brazil); Awais Rashid (Lancaster University, UK)

Demo Session 3A
Location: Room 389

D5: drUID – Unexpected Interactions Detection
André Restivo, Ademar Aguiar (Universidade do Porto, Portugal)

Hironori Washizaki, Atsuto Kubo, Tomohiko Mizumachi, Kazuki Eguchi, Yoshiaki Fukazawa (Waseda University, Japan)

5:30 pm Demo Session 4A
Location: Main Lounge

D7: A System for Supporting Collaboration with Designers by Aspect-Oriented Approach in RIA Development
Hiroaki Fukuda (Keio University, Japan)

D8: R3V3RS3: Querying for Syntactical Patterns of Conditional Compilation Usage
Bram Adams, Ahmed Hassan (Queen’s University, Canada); Herman Tramp (Ghent University, Belgium); Wolfgang De Meuter (Vrije Universiteit Brussel, Belgium)

6:30 pm Reception
Location: Main Lounge

Student Events – Poster Event
Location: Art Gallery

Optimizing Dynamic Pointcuts by using SCoPE
Tomoyuki Aotani (Tokyo Institute of Technology, Japan)

Concern Comprehension and Visualization: How Low Can You Go?
Jen Baldwin (University of Victoria, Canada)

Design Strategies for Reusable Aspects
Maarten Bynens (Katholieke Universiteit Leuven, Belgium)

Enforcing Security for Desktop Clients using Authority Aspects
Brett Cannon (University of British Columbia, Canada)

Modeling, Verification, and Testing of Non-Functional Requirements with Aspects
Zhanqi Cui (Nanjing University, China)

Pluggable and Open Aspect RunTime (POPART) - Versatile Semantics for Aspects using a Meta-Aspect Protocol
Tom Dinkelaker (Technische Universität Darmstadt, Germany)

Aspect-Oriented Generation of the API Documentation for AspectJ
Michihiro Horie (Tokyo Institute of Technology, Japan)

Taming Strongly Invasive Aspects
Emilia Katz (Technion - Israel Institute of Technology, Israel)

Enforcing Behavioral Constraints in Evolving Aspect-Oriented Programs
Raffi Khatchadourian (The Ohio State University, USA)

Improving Aspect Oriented Modularity with Design Rules
Arthur Marques (Universidade Federal de Campina Grande, Brazil)

Federated Virtual Macro Components
Chris Matthews (University of Victoria, Canada)

DandyJ: A Dynamic Distributed AOP language for Modular Implementations of Coordinated Weaving
Satoshi Morita (Tokyo Institute of Technology, Japan)

An Aspect for Resolving Aspect Interactions
Fuminobu Takeyama (Tokyo Institute of Technology, Japan)

Thursday, March 5

8:00 am Registration (opens at 8am) & Breakfast
Location: Entry Hallway, Newcomb Hall 3rd Floor (entry on ground level from McCormick Drive, the main road through campus). Breakfast will be served in the Main Lounge; Participants may eat in the Ballroom

9:00 am Keynote
Cyber Physical Systems: Aspects as a Basis for Robustness and Openness
John A. Stankovic (University of Virginia, USA)
Location: Ballroom
10:30 am Break
Location: Main Lounge

11:00 am Research Session 4: Aspect-Oriented Requirements Engineering
Betty Cheng (Michigan State University, USA) – Session Chair
Location: Ballroom

Modeling Scenario Variability as Crosscutting Mechanisms
Rodrigo Bonifácio, Paulo Borba (Universidade Federal de Pernambuco, Brazil)

Concept Analysis for Product Line Requirements
Nan Niu, Steve Easterbrook (University of Toronto, Canada)

Semantic vs. Syntactic Compositions in Aspect-Oriented Requirements Engineering: an Empirical Study
Ruzanna Chitchyan, Phil Greenwood, Americo Sampaio, Awais Rashid (Lancaster University, UK); Alessandro Garcia (Pontificia Universidade Católica do Rio de Janeiro, Brazil); Lyrene Fernandes da Silva (Universidade Federal do Rio Grande do Norte, Brazil)

Demo Session 1B
Location: Room 389

D1: A GUI Tool for FODA Feature Diagrams
Shin Nakajima (National Institute of Informatics, Japan); Taimei Aoki, Katsunori Imai (GLATTS, Inc., Japan)

D2: MAJOR and CARAljilo: Aspect Weaving in the Java Class Library
Alex Villazón, Walter Binder, Philippe Moret (University of Lugano, Switzerland)

12:30 pm Lunch (provided to all registered participants)
Location: Lunch will be served in the Main Lounge; Participants may eat in the Ballroom

12:45 pm Industry Panel
Mark Grechanik (Accenture, USA) – Session Chair
Location: Ballroom

Challenges and Roadmap for Using AOSD in Industry
Robert Baillargeon (Panasonic Automotive Systems, USA); Mark Grechanik (Accenture, USA); Nikhil Kumar (Applied Technology Solutions, Canada); Denys Poshyvanyk (College of William and Mary, USA); Eric Wohlusted (University of British Columbia, Canada)

2:00 pm Research Session 5: Testing and Verification
Shmuel Katz (The Technion-Israel Institute of Technology, Israel) – Session Chair
Location: Ballroom

Modular Verification of Dynamically Adaptive Systems
Ji Zhang, Heather Goldsby, Betty Cheng (Michigan State University, USA)

A Generic and Reflective Debugging Architecture to Support Runtime Visibility and Traceability of Aspects
Wouter De Borger, Bert Lagaisse, Wouter Joosen (Katholieke Universiteit Leuven, Belgium)

Automated Test Data Generation for Aspect-Oriented Programs
Mark Harman (King’s College London, UK); Fayezin Islam (T-Zero Processing Services LLC, USA); Tao Xie (North Carolina State University, USA); Stefan Wappler (Berner & Mattner Systemtechnik GmbH, Germany)

Demo Session 3B
Location: Room 389

D5: drUID – Unexpected Interactions Detection
André Restivo, Ademar Aguiar (Universidade do Porto, Portugal)

Hironori Washizaki, Atsuto Kubo, Tomohiko Mizumachi, Kazuki Eguchi, Yoshiaki Fukazawa (Waseda University, Japan)

Demo Session 5A
Location: Board Room

D9: Lavash: Lancaster Variability Analysis Toolkit for Heterogeneous Requirements Sets
Joost Noppen, Nathan Weston (Lancaster University, UK); Alberto Sardinha (Carnegie Mellon University, USA); Ruzanna Chitchyan, Phil Greenwood, Awais Rashid (Lancaster University, UK)

D10: Rejuvenate Pointcut: A Tool for Pointcut Expression Recovery in Evolving Aspect-Oriented Software
Raffi Khatchadorian (The Ohio State University, USA); Phil Greenwood, Awais Rashid (Lancaster University, UK)

3:30 pm Break
Location: Main Lounge

4:00 pm Industry Session: Aspects in Industry
Robert Baillargeon (Panasonic Automotive Systems, USA) – Session Chair
Location: Ballroom

Enabling the Adoption of Aspects – Testing Aspects: A Risk Model, Fault Model and Patterns
Nikhil Kumar, Dinakar Sosale, Sadhana Nivedita Konuganti, Ajay Rathi (Applied Technology Solutions, Canada)

Modelling Hardware Verification Concerns Specified in the e Language: An Experience Report
Darren Galpin (Infineon Technologies, UK); Cormac Driver, Siobhán Clarke (Trinity College Dublin, Ireland)

Using Aspect Orientation in Industrial Projects: Appreciated or Damned?
Uwe Hohenstein, Michael Jäger (Siemens AG, Germany)

Aspect-Oriented Programming with Hidden Markov Models to Verify Design Use Cases
German Florez-Larahondo, Walker Haddock (Verari Systems, Inc., USA)

Demo Session 2B
Location: Room 389

Iris Groher (Johannes Kepler University Linz, Austria); Christa Schwanninger (Siemens AG, Germany); Markus Vöelter (Independent Consultant, Germany)
5:30 pm Demo Session 4B
Location: Main Lounge

D7: A System for Supporting Collaboration with Designers by Aspect-Oriented Approach in RIA Development
Hiroaki Fukuda (Keio University, Japan)

D8: R3V3RS3: Querying for Syntactical Patterns of Conditional Compilation Usage
Bram Adams, Ahmed Hassan (Queen's University, Canada); Herman Tromp (Ghent University, Belgium); Wolfgang De Meuter (Vrije Universiteit Brussel, Belgium)

6:30 pm Cocktail hour
Location: Boars Head Inn
Please be at Newcomb Hall (McCormick Road Entrance) by 6:00 pm to load the buses.

7:30 pm Banquet
Location: Boars Head Inn

Friday, March 6

8:00 am Registration & Breakfast
Location: Entry Hallway, Newcomb Hall 3rd Floor (entry on ground level from McCormick Drive, the main road through campus). Breakfast will be served in the Main Lounge; Participants may eat in the Ballroom.

9:00 am Keynote
Everyday Aspects
Gail Murphy (University of British Columbia, Canada)
Location: Ballroom

10:30 am Break
Location: Main Lounge

11:00 am Research Session 6: Domain-Specific Aspect Languages and Applications
Alessandro Garcia (Pontificia Universidade Católica do Rio de Janeiro, Brazil) – Session Chair
Location: Ballroom

Metaproperty Aspects
Clayton Myers, Elisa Baniassad (The Chinese University of Hong Kong, Hong Kong)

Can We Refactor Conditional Compilation into Aspects?
Bram Adams (Queen’s University, Canada); Wolfgang De Meuter (Vrije Universiteit Brussel, Belgium); Herman Tromp (Ghent University, Belgium); Ahmed Hassan (Queen’s University, Canada)

Enforcing Security for Desktop Clients using Authority Aspects
Brett Cannon, Eric Wohlstadter (University of British Columbia, Canada)