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Curriculum Vitae

Klaus Marius Hansen

1 Personal Information

- Born November 30, 1974, Herning, Denmark. Danish citizen. Civil status: married, two children. Fluent in Danish and English. Working knowledge of German and Icelandic.
- Working address: Department of Science Department (DIKU), University of Copenhagen, Njalsgade 128, bygn. 24, 5. sal, DK-2300 København S. Email: klausmh@diku.dk. WWW: <http://www.diku.dk/~klausmh>. Phone: (+45) 353-21399. Mobile: (+45) 63 712 721.

2 Short Biography

Klaus Marius Hansen's research interest are within software development, in particular in software architecture for pervasive and/or dependable systems. Klaus has most recently been involved in the EU FP6 project Hydra which among others investigates software architecture for self-managed, pervasive systems. Dating back from 1997, Klaus has a long history of collaboration projects with (software) industry; a collaboration that has provided much inspiration for his research.

Klaus Marius Hansen is a full professor of software development at the Department of Computer Science (DIKU), University of Copenhagen. From 2008-2010, Klaus was a full professor of software engineering at University of Iceland and prior to that, he was associate professor at Aarhus University from 2004-2008 where he also obtained his PhD.

3 Research Areas

Software architecture, experimental software development, pervasive computing, middleware, dependable systems.

4 Recent Positions

- October 2010 –. Professor of Software Development, Department of Computer Science, DIKU, University of Copenhagen, Denmark
- October 2004 – August 2008, August 2010 – September 2010. Associate Professor, Computer Science Department, University of Aarhus, Denmark
- August 2008 – July 2010. Professor of Software Engineering, University of Iceland

- September 2002 – December 2008. Manager (initially Deputy Manager), ISIS Katrinebjerg Competency Centre (Software). Involves among others establishing, participating in, and managing joint research projects between industry and academia

5 Degrees

- July 2002. Ph.D. in Computer Science at Department of Computer Science, University of Aarhus. Thesis advisors: Ole Lehrmann Madsen and Preben Holst Mogensen.
- May 2000. Master's degree in Computer Science at the Department of Computer Science, University of Aarhus. Thesis advisors: Ole Lehrmann Madsen and Preben Holst Mogensen. May 2000. Minor degree in Mathematics at the Department of Mathematics, University of Aarhus.

6 Publications

6.1 Journal Papers

1. Hansen, K. M., Neukirchen, H., and Jonasson, K. (2011). An empirical study of software architectures' effect on product quality. *Journal of Systems and Software*, To appear
2. Brønsted, J., Hansen, K. M., and Ingstrup, M. (2010). Service composition issues in pervasive computing. *IEEE Pervasive Computing*, 9(1):62–70
3. Christensen, H. B. and Hansen, K. M. (2010). An empirical investigation of architectural prototyping. *Elsevier Journal of Systems and Software*, 83(1):133–142
4. Zhang, W., Hansen, K. M., and Kunz, T. (2010). Enhancing Intelligence of a Product Line Enabled Pervasive Middleware. *Elsevier Pervasive and Mobile Computing*, 6(2):198–217
5. Andersen, J. R., Bak, L., Grarup, S., Lund, K. V., Eskildsen, T., Hansen, K. M., and Torgersen, M. (2005a). Design, Implementation, and Evaluation of the Resilient Smalltalk Embedded Platform. *Computer Languages, Systems & Structures*, 31(3-4):127–141
6. Hansen, K. M. (2004). Thoth - a publish/subscribe architecture for peer-to-peer tool integration. *International Journal on Software Tools for Technology Transfer (STTT)*, 6(3):219–230

6.2 Book Chapters

1. Prasad, N. R., Eisenhauer, M., Ahlsén, M., Badii, A., Brinkmann, A., Hansen, K. M., and Rosengren, P. (2010). Open source middleware for networked embedded systems towards future internet of things. In Sundmaeker, H., Guillemin, P., Friess, P., and Woelfflé, S., editors, *Vision and Challenges for Realising the*

Internet of Things, chapter 4.8, pages 153 – 163. European Commission. Information Society and Media

2. Büscher, M., Christensen, M., Hansen, K., Mogensen, P., and Shapiro, D. (2009). Bottom-up, top-down? Connecting software architecture design with use. In Voss, A., Hartswood, M., Ho, K., Procter, A., Rouncefield, M., Slack, R., and Büscher, M., editors, *Configuring user-designer relations: Interdisciplinary perspectives*. Springer Verlag. 35 pages
3. Zhang, W. and Hansen, K. M. (To appear). Using Context Awareness for Self Management in Pervasive Service Middleware. In Mastrogiovanni, F. and Chong, N.-Y., editors, *Ambient Intelligence and Smart Environments: Trends and Perspectives*. IGI Global/Information Science Reference

6.3 Conference Papers

1. Christensen, H. B. and Hansen, K. M. (2011). Towards Architectural Information in Implementation (NIER Track). In *33rd International Conference on Software Engineering (ICSE'2011)*. *New Ideas and Emerging Results track*. (To appear)
2. Christensen, H. B., Hansen, K. M., and Lindstrøm, B. (2010). Lightweight and Continuous Architecture Software Quality Assurance using the aSQA Technique. In *Proceedings of the 4th European Conference on Software Architecture (ECSA 2010)*, Copenhagen, Denmark. To appear
3. Hansen, K. M. and Ingstrup, M. (2010). Modeling and Analyzing Architectural Change with Alloy. In *Proceedings of the 25th ACM Symposium on Applied Computing (SAC)*. *Track on Software Engineering*, pages 2257–2264, Sierre, Switzerland
4. Kjær, K. E. and Hansen, K. M. (2010). Modeling and implementing ontology-based publish/subscribe using semantic web technologies. In *Proceedings of the 15th IEEE International Conference on Engineering of Complex Computer Systems (ICECCS 2010)*, Oxford, UK. IEEE
5. Christensen, H. B., Hansen, K. M., and Schougaard, K. R. (2009). An empirical study of software architects' concerns. In *Proceedings of the 16th Asia-Pacific Software Engineering Conference*, pages 111–118, Penang, Malaysia
6. Ingstrup, M. and Hansen, K. M. (2009). Modeling Architectural Change: Architectural scripting and its applications to reconfiguration. In *Proceedings of the Eight Working IEEE/IFIP Conference on Software Architecture (WICSA 2009)*, pages 337–340, Cambridge UK
7. Zhang, W., Schütte, J., Ingstrup, M., and Hansen, K. M. (2009b). A genetic algorithms-based approach for optimized self-protection in a pervasive service middleware. In *Proceedings of the 7th International Joint Conference on Service-Oriented Computing (ICSoC/ServiceWave 2009)*, pages 404–419, Stockholm, Sweden

8. Zhang, W., Hansen, K. M., and Fernandes, J. (2009a). Towards open world software architectures with semantic architecture styles, components and connectors. In *Proceedings of the 14th IEEE International Conference on Engineering of Complex Computer Systems (ICECCS 2009)*, pages 40–49, Potsdam, Germany. IEEE, IEEE Computer Society
9. Zhang, W. and Hansen, K. M. (2009). An Evaluation of the NSGA-II and MO-Cell Genetic Algorithms for Self-management Planning in a Pervasive Service Middleware. In *Proceedings of the 14th IEEE International Conference on Engineering of Complex Computer Systems (ICECCS 2009)*, pages 192–201, Potsdam, Germany. IEEE, IEEE Computer Society
10. Schougaard, K. R., Hansen, K. M., and Christensen, H. B. (2008). SA@Work – A Field Study of Software Architecture and Software Quality at Work. In *Proceedings of the 15th Asia-Pacific Software Engineering Conference*, pages 411–418, Beijing, China
11. Christensen, H. B. and Hansen, K. M. (2008). Architectural prototyping in industrial practice. In *Proceedings of the Second European Conference on Software Architecture (ECSA 2008)*, pages 196–209, Cyprus, Greece
12. Christensen, H. B., Hansen, K. M., and Schougaard, K. R. (2008a). Ready! Set! Go! An Action Research Agenda for Software Architecture Research. In *Proceedings of the Seventh Working IEEE/IFIP Conference on Software Architecture (WICSA 2008)*, pages 257–260
13. Hansen, K. M., Zhang, W., and Fernandes, J. (2008a). Flexible Generation of Pervasive Web Services using OSGi Declarative Services and OWL Ontologies. In *Proceedings of the 15th Asia-Pacific Software Engineering Conference*, pages 135–142, Beijing, China
14. Brønsted, J. and Hansen, K. M. (2008a). Handling membership dynamicity in service composition for ubiquitous computing. In *Proceedings of the Second International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies (UBICOMM'08)*, pages 159–164, Valencia, Spain
15. Brønsted, J. and Hansen, K. M. (2008b). Service oriented architecture for inter-vehicle applications. In *Proceedings of the 15th World Congress on Intelligent Transportation Systems (ITS 2008)*, New York, USA
16. Zhang, W. and Hansen, K. M. (2008b). Semantic web based self-management for a pervasive service middleware. In *Proceedings of the Second IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO)*, pages 245–254, Isola di San Servolo (Venice), Italy
17. Hansen, K. M., Zhang, W., and Ingstrup, M. (2008c). Towards self-managed executable petri nets. In *Proceedings of the Second IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO)*, pages 287–296, Isola di San Servolo (Venice), Italy
18. Zhang, W. and Hansen, K. M. (2008a). An owl/swrl based diagnosis approach in a web service-based middleware for embedded and networked system. In *Proceedings of The 20th International Conference on Software Engineering and*

Knowledge Engineering (SEKE 2008), pages 893–898, Redwood City, San Francisco Bay, USA

19. Hansen, K. M., Zhang, W., and Soares, G. (2008d). Ontology enabled generation of embedded web services. In *Proceedings of The 20th International Conference on Software Engineering and Knowledge Engineering (SEKE 2008)*, pages 345–350, Redwood City, San Francisco Bay, USA
20. Zhang, W., Han, D., Kunz, T., and Hansen, K. M. (2007). Mobile game development: Object-orientation or not. In *31st Annual International Computer Software and Applications Conference. Beijing, China. IEEE Computer Society*, pages 601–608
21. Corry, A., Hansen, K., and Svensson, D. (2006). Traveling Architects — A New Way of Herding Cats. In *Proceedings of QoSA 2006*, pages 111–126
22. Brønsted, J., Hansen, K., and Thorup, R. (2006). A Uniform Publish-Subscribe Infrastructure for Communication in Wireless Mobile Environments. In *6th International Conference on ITS Telecommunications (ITST2006)*, pages 1145–1150
23. Hansen, K. and Wells, L. (2006). Dynamic Design and Evaluation of Software Architecture in Critical Systems Development. In *Proceedings of the 11th Australian Conference on Safety-Related Programmable Systems (Keynote Paper)*
24. Ingstrup, M. and Hansen, K. (2005a). A Declarative Approach to Architectural Reflection. In *In Proceedings of the 5th Working IEEE/IFIP Conference on Software Architecture (WICSA 2005)*, pages 149–158. IEEE Computer Society
25. Bardram, J., Christensen, H., Corry, A., Ingstrup, M., and Hansen, K. (2005). Exploring Quality Attributes using Architectural Prototyping. In *Proceedings of the First International Conference on the Quality of Software Architectures (QoSA 2005)*, pages 155–170
26. Ingstrup, M. and Hansen, K. M. (2005b). Palpable Assemblies: Dynamic Service Composition in Ubiquitous Computing. In *Proceedings of Software Engineering and Knowledge Engineering (SEKE) 2005*, pages 632–638
27. Brønsted, J., Hansen, K. M., and Kristensen, L. (2005). An Infrastructure for a Traffic Warning System. In *Proceedings of the IEEE International Conference on Pervasive Services 2005 (ICPS 2005)*, pages 1145–1150
28. Andersen, J. R., Bak, L., Grarup, S., Lund, K. V., Eskildsen, T., Hansen, K. M., and Torgersen, M. (2004). Design, Implementation, and Evaluation of the Resilient Smalltalk Embedded Platform. In *Proceedings of the 12th European Smalltalk User Group (ESUG) Conference*, pages 87–106
29. Hansen, K., Eskildsen, T., Kristensen, L., Nielsen, K.-D., Thorup, R., Fridthjof, J., Merrild, U., and Eskildsen, J. (2004a). The Ex Hoc Infrastructure - Enhancing Traffic Safety through Life Warning Systems. In *Proceedings of Trafikdage 2004 (11th Danish Conference on Traffic Research)*, Aalborg, Denmark

30. Bardram, J., Christensen, H. B., and Hansen, K. M. (2004). Architectural Prototyping: An Approach for Grounding Architectural Design and Learning. In *Proceedings of the 4th Working IEEE/IFIP Conference on Software Architecture (WICSA 2004)*, pages 15–24
31. Damm, C. and Hansen, K. (2004). An evaluation of workspace awareness in collaborative, gesture-based diagramming tools. In Fincher, S., Markopoulos, P., Moore, D., and Ruddle, R., editors, *People and Computers XVIII - Design for Life. Proceedings of HCI 2004, BCS Conference Series*, pages 25–50
32. Hansen, K., Larsen, S., Pagter, J., Pedersen, M., and Thomsen, J. (2004b). An evaluation of an OSGi-based residential pervasive computing platform. In *Proceedings of the IADIS Applied Computing Conference 2004*, pages 246–253
33. Hansen, K. M. and Christensen, H. B. (2004). Component Reengineering Workshops: A low-cost approach for assessing specific reengineering costs across product lines. In *Proceedings of the 8th European Conference on Software Maintenance and Reengineering (CSMR 2004)*, pages 154–162. IEEE Press
34. Hansen, K. and Damm, C. (2004). Building flexible, distributed collaboration tools using type-based publish/subscribe — the Distributed Knight case. In *Proceedings of the IASTED International Conference on SOFTWARE ENGINEERING*, pages 595–600
35. Hansen, K. M. (2003b). Agile environments. some patterns for agile development facilitation. In *Proceedings of VikingPLoP 2002*, pages 259–270
36. Hansen, K. M. and Damm, C. H. (2002b). Instant collaboration: Using context-aware instant messaging for session management in distributed collaboration tools. In *Proceedings of NordiCHI 2002*, pages 279–282
37. Hansen, K. and Ratzer, A. (2002). Tool support for collaborative teaching and learning of object-oriented modelling. In *Proceedings of the 7th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE'2002)*, pages 146–150. ACM Press
38. MacIntyre, B., Mynatt, E., Volda, S., Hansen, K., Tullio, J., and Corso, G. (2001a). Support for multitasking and background awareness using interactive peripheral displays. *Proceedings of UIST 2001, ACM Symposium on User Interface Software Technology, CHI Letters*, 3(2):41–50
39. Damm, C., Hansen, K., Thomsen, M., and Tyrsted, M. (2000c). Supporting several levels of restriction in the UML. In *Proceedings of UML'2000*, pages 396–409
40. Damm, C., Hansen, K., Thomsen, M., and Tyrsted, M. (2000e). Tool integration: Experiences and issues in using XMI and component technology. In *Proceedings of TOOLS Europe'2000*, pages 94–107
41. Damm, C., Hansen, K., Thomsen, M., and Tyrsted, M. (2000b). Creative object-oriented modelling: Support for creativity, flexibility, and collaboration in CASE tools. In *Proceedings of ECOOP'2000*, pages 27–43

42. Damm, C., Hansen, K., and Thomsen, M. (2000a). Tool support for object-oriented cooperative design: Gesture-based modeling on an electronic whiteboard. *Proceedings of CHI 2000, ACM Conference on Human Factors in Computing Systems, CHI Letters*, 2(1):518–525
43. Christensen, M., Damm, C., Hansen, K., Sandvad, E., and Thomsen, M. (1999b). Creation and evolution of software architecture in practice. In *Proceedings of TOOLS Pacific'99*, pages 2–15
44. Hansen, K. M. and Thomsen, M. (1999). The “Domain Model Concealer” and “Application Moderator” patterns: Addressing architectural uncertainty in interactive systems. In *Proceedings of TOOLS Asia'99*, pages 177–190
45. Hansen, K., Yndigegn, C., and Grønbæk, K. (1999). Dynamic use of digital library material – supporting users with typed links in open hypermedia. In *Proceedings of the European Conference on Digital Libraries (ECDL'99)*, pages 254–273
46. Christensen, M., Crabtree, A., Damm, C., Hansen, K., Madsen, O., Marquardsen, P., Mogensen, P., Sandvad, E., Sloth, L., and Thomsen, M. (1998a). The M.A.D. experience: Multiperspective Application Development in evolutionary prototyping. In Jul, E., editor, *ECOOP'98 – Object-Oriented Programming. Proceedings of the 12th European Conference*, pages 13–40. Springer Verlag

6.4 Theses

1. Hansen, K. M. (2002). *Experimental Object-Oriented Modelling*. PhD thesis, University of Aarhus, Denmark. DAIMI PB-559
2. Hansen, K. M. (2000). *Modelling in Experimental System Development*. University of Aarhus, Denmark. Unpublished Master's Thesis

6.5 Workshop Papers

1. Hansen, K. M. (2009). Interacting with Software Architectures. An Experiment with Interface Criticism of Software Architectures. In *Proceedings of the Ninth Danish HCI Research Symposium*, pages 26–29, Aarhus
2. Hansen, K. M., Jónasson, K., and Neukirchen, H. (2009a). Does software architecture matter? an empirical study of open source software architectures' effect on product quality. In *The Second Workshop on Empirical Assessment in Software Architecture (EASA'09)*, Cambridge, UK
3. Milagro, F., Rafael, P. A., Fernandes, J., Zhang, W., Hansen, K. M., and Kool, P. (2009). Deploying pervasive web services over a p2p overlay. In Reddy, S., editor, *WETICE*, pages 240–245. IEEE Computer Society
4. Zhang, W. and Hansen, K. M. (2008c). Towards selfmanaged pervasive middleware using owl/swrl ontologies. In *Proceedings of the Fifth International Workshop on Modeling and Reasoning in Context (MRC 2008)*, pages 1–12, Delft, The Netherlands

5. Hansen, K. M., Zhang, W., Fernandes, J., and Ingstrup, M. (2008b). Semantic web ontologies for ambient intelligence – runtime monitoring of semantic component constraints. In *Proceedings of the First International Research Workshop on The Internet of Things and Services*, Sophia-Antipolis, France
6. Zhang, W. and Hansen, K. M. (2007). Synergy between software product line and intelligent mobile middleware. In *The 2007 International Workshop on Intelligent Pervasive Middleware (IPM 2007), in conjugation with The 2007 International Conference on Intelligent Pervasive Computing (IPC-07)*, pages 515–520
7. Brønsted, J., Hansen, K. M., and Ingstrup, M. (2007). A survey of service composition mechanisms in ubiquitous computing. In *UbiComp 2007 Workshop Proceedings*, pages 87–92
8. Andersen, P., Bardram, J. E., Christensen, H. B., Corry, A. V., Greenwood, D., Hansen, K. M., and Schmid, R. (2005b). An Open Architecture for Palpable Computing. In *Proceedings of the Object Technology for Ambient Intelligence Workshop (OT4AmI)*
9. Hansen, K. M., Menta, G., and Pregarz, B. (2005b). Handling Adaptability, Privacy, and Accuracy in the Design of a Location-Aware Mobile Interactive Gateway. In *Proceedings of the 4th Workshop on HCI in Mobile Guides*
10. Hansen, K. M., Wells, L., and Maier, T. (2004c). HAZOP Analysis of UML-Based Software Architecture Descriptions of Safety-Critical Systems. In *Proceedings of NWUML 2004. TUCS General Publication 35*, pages 59–78
11. Hansen, K. (2003a). Activity-centred tool integration. Using Type-Based Publish/Subscribe for Peer-to-Peer Tool Integration. In *Proceedings of the ESEC Tool Integration Workshop 2003*, pages 11–17
12. Damm, C. and Hansen, K. (2002b). Distributing Knight – Using type-based publish/subscribe for building distributed collaboration tools. In *Online Proceedings of NWPER 2002*, 16 pp
13. Ratzer, A. and Hansen, K. (2002). Ideogramic: Flexibility and Formality in Collaborative Diagramming. Companion paper for demo. In *Proceedings of NordiCHI'2002*, pages 291–292
14. Hansen, K. and Damm, C. (2002a). Combining co-located and distributed collaboration tools. Position paper for the Second Danish HCI Symposium (Research'2002)
15. Damm, C. and Hansen, K. (2002a). Building distributed collaboration tools using type-based publish/subscribe. Position paper for the ECOOP'2002 Workshop on Concrete Communication Abstractions Of The Next 701 Distributed Object Systems
16. Hansen, K. (2001a). Fluid interfaces. supporting specific, general, and minimal interaction. Position paper for the First Danish HCI Symposium (Research'2001)
17. Hansen, K. M., MacIntyre, B., Mynatt, E. D., Tullio, J., and Volda, S. (2001). Hypermedia in the Kimura System. Using Spatial, Temporal, and Navigational Relationships to Support Multitasking and Background Awareness. Poster at ACM Hypertext'01

18. Andersen, C., Hansen, K., Sandvad, E., Thomsen, M., and Tyrsted, M. (2000). Tool support for iterative system development activities: Issues and experiences. In *Proceedings of NWPER'2000*, pages 1–21
19. Christensen, M., Damm, C., Hansen, K., Sandvad, E., and M. Thomsen, M. (1999a). Software Architectural Evolution in the Dragon Project. Position paper for the ECOOP'99 workshop on Object-Oriented Architectural Evolution
20. Hansen, K. (1999b). The Knight Project: Supporting Collaboration in Object-Oriented Analysis and Design. Position Paper for the ECOOP'99 Workshop on Integrating Human Factors into Use Cases and OO Methods
21. Christensen, M., Damm, C., Hansen, K., Sandvad, E., and Thomsen, M. (1998b). Architectures of prototypes and architectural prototyping. In *Proceedings of NWPER'98*, pages 247–267
22. Hansen, K. (1998). Exploiting architecture in experimental system development. In *ECOOP'98 Workshop Reader*, pages 110–114

6.6 Patents

1. Damm, C. H., Hansen, K. M., Thomsen, M., and Tyrsted, M. (2006). Method for gesture based modeling. United States Patent and Trademark Office, patent 7096454

6.7 Videos

1. MacIntyre, B., Mynatt, E., Volda, S., Tullio, J., Williams, B., and Hansen, K. (2001b). The Kimura System. Refereed video companion to UIST'2001 paper
2. Damm, C., Hansen, K., Thomsen, M., and Tyrsted, M. (2000d). The Knight Project: Tool Support for Collaborative Object-Oriented Modeling. Unrefereed companion to CHI'2000 paper

6.8 Selected Technical Reports

1. Hansen, K. M. and Brønsted, J. R. (2010). Modeling service composition reliability in pervasive computing. Technical Report RH-02-2010, Science Institute, University of Iceland. <http://www.raunvis.hi.is/reports/>
2. Hansen, K. M., Jónasson, K., and Neukirchen, H. (2009b). An empirical study of open source software architectures' effect on product quality. Technical Report VHI-01-2009, Engineering Research Institute, University of Iceland. <http://www.hi.is/~kmh/doc/vhi-01-2009.pdf>
3. Christensen, H. B. and Hansen, K. M. (2009). Final Report. Software Architecture at Work – Technical Report 3. Technical report, Department of Computer Science, University of Aarhus
4. Christensen, H. B., Schougaard, K. R., and Hansen, K. M. (2008b). Phase One: Fieldwork Autumn 2007. Software Architecture at Work – Technical Report 1. Technical report, Department of Computer Science, University of Aarhus

5. Hansen, K. M., Antolin, P., Camara, J., Carro, S., Mehta, G., Rosengren, P., Pagter, J., and østergaard Petersen, M. (2005a). eu-DOMAIN D3.1 + D4.1 Software Architecture Specification. eu-DOMAIN Deliverable
6. Hansen, K. and Christensen, H. (2003). EPJ-Softwarearkitekturer. Analyse af software-arkitekturerne for EPJ-systemerne i Ribe Amt, i Århus Amt og på Amager Hospital med speciel fokus på integrationsmuligheder. (In Danish). Internal Technical Report. The Alexandra Institute
7. Hansen, K. (2001b). Towards a Coloured Petri Net Profile for the Unified Modeling Language – Issues, Definition, and Implementation. Internal Centre for Object Technology Report COT/2-52
8. Andersen, C., Fyhn, K., Hansen, K., Kammeyer, O., Madsen, O., and Shjøth, S. (1999). Pilot Project II - Danfoss Instruments. Internal Centre for Object Technology Report COT/2-36
9. TU Wien, Architektbüro Rüdiger Lainer, UseIt Multimedia, Lancaster University, SGS Environment, University of Aarhus, and Mjølner Informatics (1999). DESARTE: The computer-supported design of artefacts and spaces in architecture and landscape architecture. Esprit LTR Project NO 31870
10. Hansen, K. (1999a). The BetaDBC Library. Internal documentation. Centre for Object Technology Report COT/4-13

7 Teaching

7.1 Lecturing

- January 2010 – May 2010. Undergraduate course (“Software Project 2”), University of Iceland.
- August 2009 – December 2009. Undergraduate course (“Reliability of Systems”), University of Iceland.
- August 2009 – December 2009. Undergraduate course (“Software Project 1”), University of Iceland.
- January 2009 – May 2009. Graduate course (“Selected Topics in Computer Science – Software Architecture”), University of Iceland.
- August 2008 – December 2008. Undergraduate course (“Reliability of Systems”), University of Iceland.
- April 2008 – June 2008. Graduate study group (“Multicore Programming”) with Henrik Bærbak Christensen and Erik Ernst, Computer Science Department, University of Aarhus
- April 2008 – June 2008. IT-Vest course (“Advanced Software Architecture”), Computer Science Department, University of Aarhus
- January 2008 – April 2008. IT-Vest course (“Basic Software Architecture”), Computer Science Department, University of Aarhus

- January 2008 – April 2008. Undergraduate course (“Distributed Systems (dDist)”), Computer Science Department, University of Aarhus
- January 2008 – April 2008. Graduate course (“Testing of Large Systems (TSS)”) with Steen Krøyer, Computer Science Department, University of Aarhus
- November 2006 – December 2007. Graduate course (“Advanced Topics in Software Architecture (ATiSA)”), Computer Science Department, University of Aarhus
- January 2007 – April 2007. Undergraduate course (“Distributed Systems (dDist)”), Computer Science Department, University of Aarhus
- January 2007 – March 2007. Graduate course (“Testing of Large Systems (TSS)”) with Steen Krøyer, Computer Science Department, University of Aarhus
- October 2006 – December 2006. Graduate course (“Advanced Topics in Software Architecture (ATiSA)”), Computer Science Department, University of Aarhus
- April 2006 – June 2006. Graduate course (“Software Reliability and Testing (SRaT)”), Computer Science Department, University of Aarhus
- May 2006. Undergraduate course (Distribution part of “Tools and Technology”), It-Vest
- January 2006 – April 2006. Undergraduate course (“Distributed Systems (dDist)”), Computer Science Department, University of Aarhus
- February 2006 – June 2006. Graduate study group (“Enterprise Software Architecture Study Group (ESASG)”), Computer Science Department, University of Aarhus
- October 2005 – December 2005. Graduate course (“Advanced Topics in Software Architecture (ATiSA)”), Computer Science Department, University of Aarhus
- January 2005 – May 2005. undergraduate course (“Experimental System Development (dEkspsSys)”) with Morten Kyng, Computer Science Department, University of Aarhus
- January 2005 – May 2005. undergraduate course (“Object-Oriented System Development (OOSU)”) with Jens Bennedsen, IT-Vest, University of Aarhus
- October 2004 – December 2004. graduate course (“Advanced Topics in Software Architecture (ATiSA)”), Computer Science Department, University of Aarhus
- January 2004 – May 2004. undergraduate course (“Experimental System Development (dEkspsSys)”) with Morten Kyng, Computer Science Department, University of Aarhus
- August 2003 – September 2003. graduate course (“Peer-to-Peer Networking (PtPN)”) with Niels Olof Bouvin, Computer Science Department, University of Aarhus
- January 2003 – May 2003. undergraduate course (“Object-Oriented System Development (OOSU)”) with Preben Holst Mogensen, IT-Vest, University of Aarhus

- February 2003 – May 2003. undergraduate course (“Experimental System Development (dEkspSys)”) with Preben Holst Mogensen, Computer Science Department, University of Aarhus

7.2 PhD Students

- As supervisor
 - Kristian Ellebæk Kjær, *Experimental development of semantic, context aware middleware for Ubiquitous Computing* (main supervisor), Aarhus University, 2006-2009. Graduated 2009-12-17
 - Jeppe Rørbæk Brønsted, *Software Architecture and Communication in Mobile Environments*, (main supervisor, with Lars Kristensen as project supervisor), Aarhus University, 2004-2008. Graduated 2008-09-12
 - Mikkel Baun Kjærgaard, *Indoor Positioning with Radio Location Fingerprinting* (main supervisor, with Søren Christensen as project supervisor), Aarhus University, 2004-2008. Graduated 2008-09-08
 - Michael Østergaard Pedersen, *Authentication and Privacy with Application to Pervasive Computing*, (project supervisor, with Ivan Damgaard as main supervisor), Aarhus University, 2004-2008. Graduated 2008-05-30
- As committee member
 - Hataichanok Unphon, *Re-engineering for Evolvability: Considering social as well as technical requirements for software products*, IT University of Copenhagen, graduated 2010-01-13
 - Tryggvi Björgvinsson, *User Driven Development Harnessing freedom for bespoke software development*, University of Iceland, ongoing. Expected graduation 2010

7.3 MSc and Diploma Students

- Ragnar Skulason, ongoing
- Jakob Styrup Bang, Ebbe Oberlin Flarup, 2008
- Morten Stærkær, 2007-2008
- Christian Jonigkeit, 2007-2008
- Klaus Kolle, It-vest master student, 2007-2008
- Joao Fernandes, Erasmus student, 2007-2008
- Jakob Venning, 2006-2007
- Gonçalo Soares, Erasmus student, 2006-2007
- Michael Petersen, 2006-2007
- Jesper Palm Mortensen, It-vest diploma student, 2006-2007
- Jess Nielsen, It-vest diploma student, 2006-2007

- Svend Rostgaard Thielsen, 2006-2007
- Esben Toftdahl Nielsen, Kristian Ellebæk Kjær (with Mads Ingstrup), 2005-2006
- René Vejlgård Vedstesen, 2005-2006
- Martin Kjeldsen, 2005-2006
- Jeppe Thestrup Knudsen, 2005
- Christian Hatt Jensen, 2004-2005
- Henrik Hermind, Jakob Jessen Hansen, Stefan Lund Johansen (with Preben Mogenssen), It-vest master students, 2003

7.4 Tutorials

- *Software Architecture in Practice*. Two days industrial course on software architecture. Given with Henrik Bærbak Christensen for the Alexandra Institute and Danish Technological Institute, 2005, 2006, 2007, 2008.
- *Collaborative Object-Oriented Modelling with the UML*. Given at OMG Information Days Copenhagen 2003, the Alexandra Institute, and JAOO'2003
- *Experimental System Development*. Three day tutorial given as part of continued education for Datamatikerlærerforeningen, May 2003. Given with Preben Holst Mogenssen.
- *UML and Teaching*. Given at Datamatikerlærerforeningens Årsmøde 2002
- *Collaborative Teaching and Learning of Object-Oriented Modeling using Ideogramic UML*. Given with Anne Vinter Ratzer at ACM ITiCSE'2002

7.5 Invited Talks

- June 2008, Softwareudvikling På Tværs, Copenhagen, Denmark
- February 2008, KomIalt, Denmark
- April 2007, Hjem til Fremtiden conference, KomIalt, Denmark
- September 2006, 11th Australian Conference on Safety-Related Programmable Systems, Melbourne, Australia
- March, 2006: SummIT06 conference, Aalborg, Denmark
- March, 2005: Security and Safety in Devices conference, Copenhagen, Denmark
- January, 2005: SummIT05 conference, Aarhus, Denmark
- May, 2004: SmartWheels conference, Aarhus, Denmark
- May, 2004: Glatføreseminar 2004, Vissenbjerg, Denmark
- March, 2003: OMG Information Days Copenhagen, Denmark

- October, 2004: Knowledge Management in Ambient Intelligence, Brussels, Belgium
- September, 2003: JAOO 2003 conference, Aarhus, Denmark
- September, 2003: SummIT03 conference, Sønderborg, Denmark
- September, 2000: JAOO 2000 conference, Aarhus, Denmark
- August, 1998: JAOO 1998 conference, Copenhagen, Denmark
- More than 30 other talks given to companies, universities etc. on research results

8 Funded Research Projects

- 2010. *NEON - Northern Europe Cloud Computing*, Nordic DataGrid Facility (NDGF). We are investigating the use of private and public clouds for high performance computing applications
- 2010. Principal investigator, *Extending a cloud API to support architectural operations*, Rannsóknasjóði Háskóla Íslands. Budget: 900.000 ISK
- 2006 – 2010. Researcher and local project manager in the *Networked embedded systems middleware for Heterogeneous phYsical Devices in a distRibuted Architecture (HYDRA)* EU IP project. We are researching, designing, and implementing technology for service-oriented, embedded ambient intelligence. Total EU contribution: 3,8 mill EUR. Grant for our activities: 0,8 mill. EUR.
- 2007 – 2009. Project manager and researcher in the *Software Architecture at Work (SA@Work)* project within ISIS Katrinebjerg. The project takes an action research-based approach to investigating and changing software architecture practice in four Danish companies. Budget: 1,5 mill. DKK.
- 2006 – 2008. Project manager and researcher in the *Context awareness in agriculture and organizations (KILO)* project within ISIS Katrinebjerg. The project investigates context-aware and context-based integration of systems with the agricultural sector. Budget: 2 mill. DKK.
- 2004 – 2006. Researcher and local project leader in the *enabling users for – Distance-working & Organizational Mobility using Ambient Intelligence service Networks (eu-DOMAIN)* EU STREP project. We are responsible for designing and evaluating the software and security architectures for the resulting ambient intelligence service network. Total EU contribution: 2,4 mill EUR. Grant for our activities: 0,4 mill. EUR.
- 2004 – 2008. Researcher in the *PalCom* EU integrated project. The project is concerned with designing open software architectures supporting pervasive computing applications. I worked with aspects of software architecture design and evaluation.
- 2003 – 2006. Project manager and researcher in the *Architectures for Communication among Mobile and Stationary Units (LIWAS)* project within ISIS Katrinebjerg. The project investigates construction and deployment of a pervasive

computing system based on mobile sensors and ad hoc communication. LIWAS ApS participates. Budget: 8 mill. DKK.

- 2003 – 2005. Project manager and researcher in the *Object-Oriented Software Safety* project within ISIS Katrinebjerg. The project investigates the use of object-oriented techniques and technology in the development of a specific safety-critical system. Danfoss Drives A/S and Systematic Software Engineering A/S participate. Budget: 2,1 mill. DKK.
- 2003. Project manager and researcher in the *Enabling Pervasive Computing in Reality (EPCiR)* project within ISIS Katrinebjerg. The project prototyped and analyzed residential pervasive computing solutions from use, business, security, and architecture perspectives. TDC A/S, In-Jet ApS, and Innovation Lab participated. Budget: 1,2 mill. DKK.
- 2002 – 2003. Principal researcher in the *Architectures of EHR Systems* project within ISIS Katrinebjerg. The project analyzed potential component reuse across EHR systems in Denmark. Hovedstadens Sygehusfælleskab (H:S) participated and Systematic Software Engineering A/S, TietoEnator Healthcare A/S, Cap Gemini A/S, and Acure A/S were involved. Budget: 0,3 mill. DKK.
- 1999 – . The *Knight* project. Currently project manager. The project is working on tool support for collaborative diagramming on electronic whiteboards. The work has been the basis for the establishment of Ideogramic ApS.
- 2001 – 2002. The *WorkSPACE* EU project. The objective of the WorkSPACE project was to develop software components and hardware artefacts that may be combined and integrated into augmented reality work places, environments, and fields.
- 2001. The *Augmented Office* project, Georgia Institute of Technology. The project aims at augmenting ordinary desktop computing with peripheral awareness using multiple electronic whiteboards. I worked on the Kimura system supporting this.
- 1998 – 2000. The *DESARTE* project. DESARTE was an EU project concerned with computer-supported design of artefacts and spaces in architecture and landscape architecture.
- 1999. The *Centre for Object Technology (COT) Case 2* project. This project was concerned with creating an object-oriented version of software for a flow meter in collaboration with Danfoss Instrumentation.
- 1998. The *Distributed Multimedia and Applications(DMM)* project. The sub-project I was involved in tried to create a virtual project room for designers in collaboration with LEGO.
- 1997 – 1998. The *Dragon* project. The project was concerned with constructing a series of prototypes and architectures of a global customer service system for Maersk Line.

9 Software

- 2007 –. *Flamenco*. A self-management tool and SDK developed in the Hydra project.
- 2007 –. *Limbo*. An ontology-enabled web service compiler for ambient intelligent, embedded systems. Developed in the Hydra project.
- 2006. *ARex*. Developed in eu-DOMAIN, the ARex tool enables non-intrusive, architectural monitoring of web service-based service-oriented architectures.
- 2005 – 2006. *Heimdall*. Heimdall is a system for translating (join point) events from programming language executions to the execution of a formal, state-based system model. Specifically, we have implemented a translation from Java-based architectural prototypes to Coloured Petri Net models. Heimdall has been developed in the OOSafety project.
- 2003 – 2006. *The Ex Hoc Architecture*. Developed in the LIWAS project which develops technology for measuring road surfaces and communicating this data in an ad hoc environment. The communication part is built upon OOVm Resilient technology.
- 2003. *EPCiR prototype*. A prototype of a residential pervasive computing platform based on OSGi involving among other a mock-up of an active health care bandage.
- 2002 – 2005. *Distributed Knight*. An extension of Knight that support distributed, synchronous collaboration implemented using type-based publish/subscribe.
- 2001. *Kimura*. A set of tools for augmenting individual office environments with interactive peripheral displays.
- 2000 – 2005. *Various Ideogramic products*. Ideogramic produces diagramming software for pen-based input devices based on results from the Knight Project.
- 1999 – 2005. *Knight*. A gesture-based tool for co-located, collaborative object-oriented modelling.
- 1999. *Typed links in Webvise*. We extended the Webvise open hypermedia system with support for typed links. The ECDL'99 paper describes these extensions.
- 1998 – 1999. *BetaDBC*. Relational database interface for the Mjølnir BETA System.
- 1997 – 1998. *Dragon Customer Service System Prototype*. Described in ECOOP'98 paper.

10 Committee Work

- Program committee, IEEE CCNC – Work in Progress track, 2011
- Program committee, 4th European Conference on Software Architecture (ECSA), 2010

- Workshop co-chair, research papers program committee, 6th Nordic Conference on Human-Computer Interaction (NordiCHI), 2010
- Organizing committee, PARA 2010 conference: State of the Art in Scientific and Parallel Computing, 2010
- Expert/reviewer of project proposals, Research Council of Norway, VERDIKT programme, 2010
- IEEE CCNC short papers program committee, 2009, 2010
- European Science Foundation (ESF) review, 2006 –
- Program Committee, International Workshop on Distributed and Distributed Computing in Ambient Environments - DiComAe 2009
- Program Committee, Nordic Workshop on Model Driven Software Engineering - MoDE'09
- Program Committee, the 1st International Workshop on Technologies for the Networked Enterprise (NetE'09)
- RANNIS reviewer, 2008
- Program Committee, the 7th MiNEMA Workshop 2008
- Program Co-Chair, the 1st International Research Workshop on The Internet of Things and Services 2008
- Program Committee, Nordic Workshop on Model Driven Software Engineering - MoDE'08
- Expert reviewer of project proposals, KK-stifelsen (Sweden), 2004, 2005, 2007
- Program Committee, Nordic Workshop on Model Driven Software Engineering - MoDE'07
- Program Committee, NWUML'2006: The 4th Nordic Workshop on UML and Software Modeling.
- Program Committee, NWUML'2005: The 3rd Nordic Workshop on UML and Software Modeling.
- Program Committee, IASTED Software Engineering and Applications (SEA) 2005.
- Research Papers Program Committee, Agile 2005.
- Organizing Committee, AV Chair, Critical Computing — Sense and Sensibility in IT research. The Fourth Decennial Aarhus Conference, 2005.
- Research Papers Program Committee, Agile Development Conference 2004.
- Program Committee, 11th Nordic Workshop on Programming and Software Development Tools and Techniques NWPER'2004.

- Program Committee, First International Workshop on Computer Support for Human Tasks and Activities at the PERVASIVE 2004, Second International Conference on Pervasive Computing.
- Organizing Committee, Demo and AV Chair, NordiCHI'2002, the Second Nordic Conference on Human-Computer Interaction.
- Organizing Committee, RESEARCH'2001, First Danish HCI Research Symposium.

11 Administration

- Manager (previously co-manager) of ISIS Katrinebjerg Software, 2002-2008
- Member of Minema steering committee, 2006-2009
- Member of D-Artemis steering committee, 2007-2009
- Manager of Infrastructure part of KomIalt, 2005-2008
- Study board of the Aarhus Graduate School of Engineering, University of Aarhus, 2008
- Careers Advisor, Computer Science Department, University of Aarhus, 2007-2008
- Various committees at Computer Science Department, University of Aarhus: Library, Seminar, 2004-2008

12 Relevant Other Work Experience

- June 2007 – . Founder of the Bifrost Software consultancy company.
- May 2002 – September 2004. Research Assistant Professor, Computer Science Department, University of Aarhus.
- February 2001 – August 2001. Research scholar at Everyday Computing Lab, College of Computing, Georgia Institute of Technology, visiting Elizabeth My-natt.
- July 2000 – October 2002. Director of Research & Development and cofounder of Ideogramic ApS. Together with two fellow PhD students and a former Masters student, I have created a start-up company that produces diagramming solutions for pen-based interfaces such as electronic whiteboards and tablet computers.
- February 1997 – June 1998. Project programmer in the Dragon Project. In the project, I worked with cooperative design and object-oriented analysis, design, and implementation.
- September 1996 – May 2000. Teaching assistant, various courses at the Computer Science and Mathematics Departments, University of Aarhus.
- October 1993 – March 1994 Technician, Halcrow Fox, Hammersmith, London. The work involved, among others, data collection, analysis, and to some extent communication in relation to report writing