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Education and Degrees Received

Technische Universität München
1978 Dr. rer. nat. (thesis advisors: Prof. F.L. Bauer, Prof. K. Samelson)
Cornell University, Ithaca, New York
1971 Master of Science in Computer Science
Technische Universität Hannover, Universität Erlangen
1969 Vordiplom, Electrical Engineering

Scientific Career

Universität Bremen
since 1987 Full Professor, “Programming Languages, Compilers and Software Technology”
since 1982 Associate Professor, “Programming Languages and Compilers”
University of California, Berkeley
1979–80 Assistant Professor (part time); tenure track position
Stanford University
1979–80 Research Associate (part time)
Technische Universität München
1972–82 Research Assistant, Project “Computer-aided Intuition-guided Programming” in
the DFG Collaborative Research Center “Programming Technology” (SFB 49),
Institut für Informatik
Cornell University, Ithaca, New York
1970–71 DAAD Scholar; “German Graduate Exchange Fellow” of Cornell University

Research Projects and Research Coordination

Cognitive Science and Robotics

- 2003–2006 DFG Research Center (SFB/TR8) “*Spatial Cognition – Reasoning, Action, Interaction*”: projects “*AI[RoboMap] Maps for Robot Navigation*”, “*I3[SharC] Shared Control via Dialogs*”, “*I4[SPIN] Specification for the Integration of Spatial Concepts*”
- 2002–2004 DAAD International Quality Network “*Spatial Cognition*”
- 2001–2004 DFG project *SafeRobotics* “*Formal Fault-Tree Analysis, Specification and Testing of Hybrid Real-Time Systems with Application to Service Robotics*”
- 2001–2003 DFG project “*Automatic Diagnosis of Strategies of Other Mobile Robots in a Cooperative, Dynamic Environment*” in the Priority Program “*Cooperating Teams of Mobile Robots in Dynamic Environments*” (joint project with T. Röfer, C. Schlieder & U. Visser)
- 1996–2003 DFG Priority Program “*Spatial Cognition*”: project “*Image-Sequence-Based Semi-Local 3D Landmarks for Navigation in Dynamic Environments*”
- 1992–1996 Chairman, DFG Graduate College “*Spatial Orientation and Organisation of Action of Autonomous Systems*”
- 1990–1994 Interdisciplinary Priority Program “*Cognitive Autonomous Systems*”, Universität Bremen

Formal Methods and Tools for Safe Systems

- 2001–2004 Coordinator, Cooperative Project *MMISS* “*MultiMedia Instruction in Safe and Secure Systems*” in the bmb+f programme “*New Media in Education*”; 5 university partners
- since 2001 Coordinator “*Tools*”, Common Framework Initiative for algebraic specification and development (CoFI), IFIP WG 1.3
- 1993–2001 Coordinator “*Language Design (CASL)*”, Common Framework Initiative for algebraic specification and development (CoFI), IFIP WG 1.3; partially supported as ESPRIT WG CoFI
- 2001–2004 DFG project *AWE* “*Abstraction and Reuse of Formal Program Developments*”
- 2001–2006 DFG project *HasCASL* “*Algebraic Specification + Functional Programming = Environment for Formal Software Development*”
- 2000–2005 DFG project *Multiple* “*Multi-Logic Systems as a Basis for Heterogeneous Specification and Development*”
- 1998–2001 DFG project *COOFL* “*Concurrent Object-Oriented Functional Programming Language*”
- 1996–2000 Bremen ISP Project “*Tools for Specification and Development with Algebraic Methods*”
- 1995–98 Coordinator, BMFT Cooperative Research Project *UniForM* “*Universal Formal Methods Workbench*”; 3 partners from academia and industry
- since 1995 Project “*Graph Visualisation System daVinci*”; supported by various organisations
- 1991–94 BMFT Cooperative Research Project *KORSO* “*Correct Software*”

- 1989–96 Coordinator, CEC ESPRIT WG *COMPASS I and II* “A *COMP*rehensive Algebraic Approach to System Specification and development”; 20 university partners
- 1985–90 Coordinator, CEC ESPRIT project *PROSPECTRA* “*PRO*gram development by *SPEC*ification and *TRANS*formation”; 8 partners from academia and industry
- 1978–79 Major Team Member, Design and formal definition of the programming language *ADA*, CII Honeywell Bull (France); funded by the US DoD in an internationally competitive programme

Miscellaneous

Academic Functions, Universität Bremen

- since 2003 Member of the Executive Board, DFG Research Center (SFB/TR8) “*Spatial Cognition – Reasoning, Action, Interaction*”
- 2001–2003 Vice-Dean (for Informatics), Fachbereich 3 *Mathematics and Informatics*
- 1998–2001 Dean, Fachbereich 3 *Mathematics and Informatics*
- 1999–2003 Coordinator, Cooperation between *Universität Bremen* and *International University Bremen (IUB)*
- 1999–2001 Chairman, Finance Commission of the Academic Senate
- since 1995 Chairman, *Bremen Institute of Safe Systems*, Center for Computing Technologies
- 1993–96 Member of the Executive Board, *Center for Cognitive Sciences (ZKW)*

Scientific Organisations

- since 1992 Member, Working Group 1.3 “Foundations of Systems Specification”, *International Federation of Information Processing (IFIP)*
- 1992–96 Member of the Executive Board, “Semantics and Specification”, *German Informatics Society (GI)*
- 1984–86 German representative, ISO/TC 97/SC 22/WG 8/Ada, *Int’l Standardization Organization*
- 1983–85 Founder and chairman, Working Group “Formal Methods for Specification and Development”, *Ada Europe*;
Member, Steering Committee, *Ada Europe (WG Standardisation)*, CEC
- 1973–85 Member, *IFIP* Working Group 2.4 (“System Implementation Languages”)

Research Visits

- 1985 Guest Lecturer and Advisor, Guizhou Education College, Guiyang, P.R. China, organized by the *Chinese Academy of Sciences, Beijing*; supported by the DAAD
- 1984 Scientific Advisor, Department of Computer Science and Technology, Beijing University, as Foreign Expert in the “Chinese University Development Project” of the *World Bank*