

**Prof. Dr.-Ing./Univ. Tokio  
Martin Buss**

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Faculty of Electrical Engineering and Information Technology  
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Born August 19, 1965

**Career**

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| 2003-present | Chair and Director, Full Professor (C4)<br>Institute of Automatic Control Engineering, Technische Universität München, Munich, Germany |
| 2000-2003    | Full Professor (C4) for Control Systems, Head and Director of Control Systems Group<br>Technical University Berlin, Berlin, Germany    |
| 1995-2000    | Senior Researcher and Lecturer<br>Technische Universität München, Munich, Germany  |
| 1994-1995    | Postdoctoral researcher<br>The Australian National University, Canberra, Australia   |

**Research Interests**

hybrid dynamical systems, optimal control, nonlinear control systems, nonholonomic systems, real-time optimization techniques, dextrous hand manipulation control, multi- legged locomotion, humanoid walking, control using computer vision, human-machine systems, teleoperation, virtual reality, medical applications.

**Honours**

- Hugo Schuck Best Paper Award from the American Control Conference ACC'2001
- Visiting Professorship award from Chuo University, Tokyo, Japan, 2002
- Best paper award from the Japanese Society of Robotics (RSJ), 1994
- Doctoral and postdoctoral scholarship award from the Japanese Society for the Promotion of Science (JSPS)
- Scholarship award from "Deutscher Akademischer Austauschdienst (DAAD)"

**Activities/Competence**

- Coordinator of EU-Projects TOUCH-HapSys and Immersence, 2002-
- Coordinator of the Collaborative Research Centre (SFB) 453 "High-Fidelity Telepresence and Teleaction", 2006-
- Member of the Senate, German Research Council DFG, 2005-
- President of the German Society for Robotics—DGR, 2003-
- Editorial boards: IEEE Control Systems Society, at–Automatisierungstechnik, etc.

**Most Important Relevant Publications (Selected)**

- [1] H. Baier, **M. Buss**, F. Freyberger, and G. Schmidt. Interactive stereo vision telepresence for correct communication of spatial geometry. *The International Journal of the VSP and Robotics Society of Japan*, 17(3):219–234, 2003.
- [2] **M. Buss**, "Hybrid Control of Mechatronic Systems," *Journal on Systems, Control and Information; Institute of Systems, Control and Information Engineers, ISCIE*, vol. 46, p. 126, 137 2002.
- [3] K. Drewing, M. Fritschi, R. Zopf, M.O. Ernst, and **M. Buss**. First evaluation of a novel tactile display exerting shear force via lateral displacement. *ACM Transactions on Applied Perception*, 2(2):118–131, 2005.
- [4] S. Hirche and **M. Buss**. Insights on human adapted control of networked telepresence and teleaction systems. *International Journal of Human-friendly Welfare Robotic Systems*, 2006.
- [5] S. Hirche, P. Hinterseer, E. Steinbach, and **M. Buss**. Towards deadband control in networked teleoperation systems. In *Proceedings IFAC World Congress, International Federation of Automatic Control*, Prague, Czech Republic, 2005. **Best Poster Award**
- [6] P. Kammermeier, **M. Buss**, and G. Schmidt. A Systems Theoretical Model for Human Perception in Multi-Modal Presence Systems. *IEEE/ASME Transactions on Mechatronics*, 6(3):234–244, 2001.
- [7] J. Mareczek, **M. Buss**, and M. Spong. Invariance control of normal forms with input driven internal dynamics. In *Proceedings of the American Control Conference*, Arlington, VA, USA, 2001. **Hugo Schuck Best Paper Award**
- [8] J. Mareczek, M. Spong, and **M. Buss**, "Invariance Control for a Class of Cascade Nonlinear Systems," *IEEE Transactions on Automatic Control*, vol. 47, Nr. 4, pp. 636–640, 2002.
- [9] T. Schlegl, **M. Buss**, T. Omata, and G. Schmidt. A Discrete-Continuous Approach Towards Robust Control of Multi-Fingered Manipulation. *IEEE/ASME Transactions on Mechatronics*, 7, 2003.
- [10] M. Sobotka and **M. Buss**. Hybrid modeling and control of a monoped robot with variable foot contact. *Journal of the Society of Instrument and Control Engineers SICE*, 44(7):477–485, 2005.