

# Morten Fjeld

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URLs:                         Personal: [www.fjeld.ch](http://www.fjeld.ch), Research laboratory: [www.t2i.se](http://www.t2i.se)

## Research Interests and Career Plans

Firstly, my research interest is oriented towards Human-Computer Interaction (HCI). I am particularly interested in the design and evaluation of Tangible User Interfaces (TUI) that apply Augmented Reality (AR) innovations, such as coinciding action-perception spaces and physical controls. Such interfaces lend themselves well to multi-user processes such as collaborative design, which has consequently directed my interest towards Computer-Supported Collaborative Work (CSCW). Secondly, I have carried out research in cognitive ergonomics, where I modelled user problem-solving behaviour based on protocol data. In the same modelling project, I analyzed behavioural patterns to learn more about the strategies that users employ. Thirdly, I have a more recent interest in the use of 3D representation for educational material. I hope this research will yield a greater insight into the field of computer assisted learning.

I have taught several university courses and tutored graduate and doctoral students from various backgrounds. After these experiences, I have a grounded interest to continue teaching in HCI. And to further qualify myself, I pursue continuous pedagogical training.

Based on my research interests and building from my teaching experiences, I plan to pursue an academic career, taking an active part in the teaching and research programs of my employer.

## Research Interests in Brief

- Human-Computer Interaction (HCI)
- Tangible User Interfaces (TUI)
- Tabletop and Horizontal Interaction
- Augmented Reality (AR)
- Language and Semiotics of Collaborative Interaction
- Computer-Supported Collaborative Work (CSCW)

## Education

2002	ETH Medal granted for the PhD dissertation. Top 5% of doctoral dissertations.
2001-2003	Postgraduate teachers training at ETH Zurich, Switzerland (10 days duration)
1997-2001	Ph.D. in Human-Computer Interaction at ETH Zurich, Switzerland
1992-1993	Postgraduate courses in Applied Statistics at ETH Zurich, Switzerland
1985-1990	M.Sc. in Applied Mathematics at Norwegian Institute of Technology (NTNU), Norway (1.7)
1989	B.Sc. in Applied Mathematics at IMAG of National Polytechnic Institute of Grenoble, France

## Academic Appointments

- 2004 - Associate Professor at *Dept. of Computer Science and Engineering*, Chalmers University of Technology, Sweden. (Swedish title: *Lektor*).  
Host: Prof. Dr. Jan Smith (Computer Science and Engineering)
- 2002- 2003 Adjunct Associate Professor at *Institute for Information Science*, University of Bergen, Norway.  
Host: Prof. Dr. Konrad Morgan (Information Science)
- 2002- 2005 Lecturer at *Hochschule für Gestaltung und Kunst (HGKZ)*, Zurich, Switzerland.  
Host: Gerhard Boorman (Interaction Design)
- 2002- 2003 Lecturer at *HyperWerk – School for Design and Media* at FHBB, Basel, Switzerland.  
Host: Prof. Mischa Schaub (Industrial Design)
- 2001- 2003 Alternate head and assistant professor (Oberassistent) at the *Man-Machine Interaction (MMI)* group, *Institute of Hygiene and Applied Physiology*, ETH Zurich, Switzerland.  
Host: Prof. Dr. Dr. Helmut Krueger (Production and Work Sciences)
- 2000-2001 Research associate at *Collegium Helveticum*, ETH Zurich, Switzerland.  
Host: Prof. Dr. Helga Nowotny, Ph.D. (Philosophy of Science)
- 1997-2001 Research associate at the *Man-Machine Interaction (MMI)* research group, *Institute of Hygiene and Applied Physiology*, ETH Zurich, Switzerland.  
Host: Prof. Dr. Dr. Helmut Krueger (Production and Work Sciences)
- 1997-1999 Research associate at the *Center of Product Development*, *Institute of Mechanical Systems*, ETH Zurich, Switzerland.  
Host: Prof. Dr. Martin Bichsel (Computer Vision)
- 1987-1989 Tutor in Calculus and Analytic Geometry at *Department of Mathematical Sciences*, NTNU, Norway.

## Industrial Appointments

- 1990-1996 Oerlikon Contraves AG, Zurich, Switzerland. Software Engineer  
Design, development, and testing of measuring systems, simulators, and user interfaces.
- 1989-1990 French Civil Nuclear Research Institute (CEA), Grenoble, France. Visiting researcher (8 Months).  
Host: Prof. Dr. Marc Délhaye. (Fluid Mechanics)
- 1989 GM Opel AG, Technical Computations, Rüsselsheim, Germany. Visiting Engineer (2 Months).  
Host: Dr. H. J. Gora (Technical Computations)
- 1987, 1988 Alès School of Mines, Alès, France. Visiting junior researcher (2 + 2 Months).  
Host: Prof. Dr. Bernard Vayssade (Rock Sciences).
- 1984-1985 Royal Norwegian Naval Academy. Officer (12 Months)

## Research Laboratories

- TableTop Interaction Laboratory at CSE, Chalmers, [www.t2i.se](http://www.t2i.se)
- Force Feedback Slider, <http://www.t2i.se/projects.php>, current projects
- Augmented Chemistry: Tangible Interface for Chemistry Education, <http://www.t2i.se/projects.php>, current projects
- BUILD-IT: Tangible Interaction Collaboratory (co-operated with Martin Bichsel), [www.fjeld.ch/hci](http://www.fjeld.ch/hci)
- AMME: Cognitive Modeling Toolkit (co-operated with Matthias Rauterberg), [www.fjeld.ch/ce](http://www.fjeld.ch/ce)
- KnowledgeMap: Interactive knowledge representation tool for digital educational books, [www.fjeld.ch/pub/nee.pdf](http://www.fjeld.ch/pub/nee.pdf)

# Publications<sup>1</sup>

## Peer-Reviewed Journal Articles

- J11. M. Sundin and M. Fjeld (pending second review): Elastic Computer Input Control in Six Degrees of Freedom. Submitted to *International Journal of Human-Computer Studies (IJHCS)*, Elsevier.
- J10. M. Fjeld (2004): Special Issue on Augmented Reality -- Usability and Collaborative Work. In *ACM Interactions*, Volume XI.6, pp. 11-15.
- J9. M. Fjeld (2003): Augmented Reality: Usability and Collaborative Aspects. Introduction to (Fjeld, ed.) A special issue of *International Journal of Human-Computer Interaction* on Augmented Reality, Volume 16(3).
- J8. M. Fjeld, M. Morf, H. Krueger (2003): Activity Theory and the Practice of Design: Evaluation of a Collaborative Tangible User Interface. In (L. Uden and Y. Engeström, eds.) A Special issue of *International Journal of Human Resources Development And Management (IJHRDM)* on Activity Theory for Organizational Development and Management (invited), Volume 4, No. 1, pp. 94-116.
- J7. M. Fjeld, K. Lauche, M. Bichsel, F. Voorhorst, H. Krueger and M. Rauterberg (2002): Physical and Virtual Tools: Activity Theory Applied to the Design of Groupware. In B. A. Nardi and D. F. Redmiles (eds.) A Special Issue of Computer Supported Cooperative Work (CSCW): Activity Theory and the Practice of Design, Volume 11 (1-2), pp. 153-180. (Mentored by Prof. Dr. W. Weber, Psychology, University of Innsbruck, Austria). (invited).
- J6. M. Fjeld and M. Rauterberg (2001): Designing for Tangible Interaction: The BUILD-IT Project. In *European Research Consortium for Informatics and Mathematics (ERCIM) News* No.46, Special Theme: Human Computer Interaction, p.34.
- J5. M. Fjeld, M. Bichsel, M. Rauterberg & H. Krueger (2001): «BUILD-IT»: Hand in Hand mit dem virtuellen Designer. (In English: BUILD-IT: Hand in hand with the virtual designer). In *Illustrierte Zeitschrift für Arbeitssicherheit IZA* (In English: Illustrated journal for work safety), No. 1/2001. (invited)
- J4. M. Fjeld (2000): Werkzeuge zum Handeln und Denken in der computergestützten Arbeit (In English: Tools for Action and Reflection in Computer-mediated Work). In *Meridian*, No. 7/2000. (invited) (Mentored by Prof. Dr. Wolfgang Weber, Institute of Psychology, University of Innsbruck, Austria). (invited).
- J3. M. Fjeld, M. Bichsel, F. Voorhorst, K. Lauche, H. Krueger and M. Rauterberg (1999): Designing graspable groupware for co-located planning and configuration tasks. *EACE Quarterly*, Vol. 3/2, pp. 16-21. (invited)
- J2. M. Fjeld, M. Bichsel and M. Rauterberg (1999): BUILD-IT: Intuitive plant layout mediated by natural interaction. *Arbete Människa Miljö and Nordisk Ergonomi* (In English: Work, Human being, Environment), 1/99, pp. 49-56. (invited)
- J1. M. Rauterberg and M. Fjeld (1998): Task analysis in Human-Computer interaction - supporting action regulation theory by simulation. *Zeitschrift für Arbeitswissenschaft* (In English: Journal for Work Sciences), 3/98, pp. 152-161. (invited)

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<sup>1</sup> When available, publications printed or in press are offered as pdf-files at: [www.fjeld.ch/pub](http://www.fjeld.ch/pub). Publications submitted or in preparation may be offered at request.

## Peer-Reviewed Conference Papers

- C35 F. Duca, J. Fredriksson, M. Fjeld (in press): 3D Hand Navigation. Proc. Workshop at the IEEE Virtual Reality 2007 Conference: Trends and Issues in Tracking for Virtual Environments.
- C34 W. Mähr, R. Carlsson, J. Fredriksson, O. Maul, M. Fjeld (2006): Tabletop Interaction: Research Alert. Proc. ACM NordiCHI 2006, pp. 499-500.
- C33 A. Shahrokni, J. Jenaro, T. Gustafsson, A. Vinnberg, J. Sandsjö, M. Fjeld (2006): One-Dimensional Force Feedback Slider: Going from an Analogue to a Digital Platform. Proc. ACM NordiCHI 2006, pp. 453-456.
- C32 W. Fallot-Burghard, M. Fjeld, C. Speirs, S. Ziegenspeck, H. Krueger, T. Läubli (2006): Touch&Type: A Novel Pointing Device for Notebook Computers. Proc. ACM NordiCHI 2006, pp. 465-468.
- C31 T. H. Andersen, R. Huber, A. Kretz and M. Fjeld (2006): Feel the Beat: Direct Manipulation of Sound during Playback. Proceedings IEEE International Workshop on Horizontal Interactive Human-Computer Systems (TableTop2006), pp. 123-124.
- C30 J. Almgren, R. Carlsson, H. Erkkonen, J. Fredriksson, S. Møller, H. Rydgard, M. Österberg, K. Bötschi, B. Voegtli and M. Fjeld (2005): Tangible User Interface for Chemistry Education: Visualization, Portability, and Database. Proceedings of SIGRAD 2005, Linköping University Electronic Press, pp. 19-24.
- C29 A. Kretz, R. Huber and M. Fjeld (2005): Force Feedback Slider: An interactive device for learning dynamic system behavior. Proceedings of IEEE Int. Conf. on Advanced Learning Technologies, pp. 457-458.
- C28 M. Fjeld, D. Hobi, L. Winterthaler, B. Voegtli and P. Juchli (2004): Teaching Electronegativity and Dipole Moment in a TUI. Proceedings of IEEE Int. Conf. on Advanced Learning Technologies, pp. 792 – 794.
- C27 M. Fjeld, H.J. Zuberbühler, S. Guttormsen, F. Voorhorst and H. Krueger (2003): Towards Guidelines for Touch Screen Design: Perception of Button Form and Extension. Proceedings of INTERACT 2003, pp. 757-760
- C26 M. Fjeld, P. Juchli and B. M. Voegtli (2003): Chemistry Education: A Tangible Interaction Approach. Proceedings of INTERACT 2003, pp. 287-294.
- C25 M. Fjeld, S. Guttormsen Schär, D. Signorello and H. Krueger (2002): Alternative Tools for Tangible Interaction: A Usability Evaluation. Proceedings of the International Symposium on Mixed and Augmented Reality (ISMAR) 2002, pp. 157-166.
- C24 C. Hitzke, M. Fjeld, S. Schlupe, S. Guttormsen Schär and B. Danuser (2002): Learning Content Production: Acquisition, Structuring, Representation, and Management. Proceedings of the 4th International Conference on New Educational Environments.
- C23 M. Fjeld, N. Ironmonger, S. Guttormsen Schär and H. Krueger (2001): Design and Evaluation of Four AR Navigation Tools Using Scene and Viewpoint Handling. Proceedings of INTERACT 2001. pp. 214-223. (Mentored by Prof. Dr. Terry Winograd, Human-Computer Interaction, Stanford University).
- C22. M. Fjeld (2000): Evaluating Navigation Methods for an AR System. In W. E. Mackay (ed.) Proceedings of DARE Designing Augmented Reality Environments, ACM, pp. 157-158.

- C21. M. Fjeld, F. Voorhorst, M. Bichsel, K. Lauche, M. Rauterberg and H. Krueger (1999): Exploring Brick-Based Navigation and Composition in an Augmented Reality. In H.-W. Gellersen (ed.) *Handheld and Ubiquitous Computing (HUC 99)*, LNCS, Vol. 1707. Berlin/Heidelberg: Springer-Verlag, pp. 102-116.
- C20. M. Fjeld, F. Voorhorst, M. Bichsel, and H. Krueger (1999): Exploring brick-based camera control. In H.-J. Bullinger and J. Ziegler (eds): *Proceedings of HCI International '99*, (the 8th International Conference on Human-Computer Interaction), pp. 1060-1064.
- C19. M. Fjeld, N. Ironmonger, F. Voorhorst, M. Bichsel, and M. Rauterberg (1999): Camera control in a planar, graspable interface. *17th IASTED International Conference Applied Informatics (AI'99)*, pp. 242-245.
- C18. M. Fjeld, M. Bichsel and M. Rauterberg (1999): BUILD-IT: a brick-based tool for direct interaction. In D. Harris (ed.) *Engineering Psychology and Cognitive Ergonomics (EPCE)*, Vol. 4. Hampshire: Ashgate, pp. 205-212.
- C17. M. Fjeld, S. Schluep and M. Rauterberg (1999): Action-driven quantification of task-solving behavior. In D. Harris (ed.) *Engineering Psychology and Cognitive Ergonomics (EPCE)*, Vol. 4. Hampshire: Ashgate, pp. 253-261.
- C16. M. Fjeld, F. Jourdan, M. Bichsel and M. Rauterberg (1998): BUILD-IT: an intuitive simulation tool for multi-expert layout processes. In M. Engeli and V. Hrdliczka (eds.) *Fortschritte in der Simulationstechnik (ASIM)* (In English: *Advances in Simulation*), pp. 411-418. Zurich: v/d/f Hochschulverlag AG.
- C15. M. Fjeld, K. Lauche, S. Dierssen, M. Bichsel and M. Rauterberg (1998): BUILD-IT: A Brick-based integral Solution Supporting Multidisciplinary Design Tasks. In A. Sutcliffe, J. Ziegler and P. Johnson (eds.) *Designing Effective and Usable Multimedia Systems (IFIP 13.2)*, pp.131-142. Boston: Kluwer Academic Publishers.
- C14. M. Fjeld, M. Bichsel and M. Rauterberg (1998): BUILD-IT: An Intuitive Design Tool Based on Direct Object Manipulation. In I. Wachsmut and M. Frölich (eds.) *Gesture and Sign Language in Human-Computer Interaction (GW'97)*, *Lecture Notes in Artificial Intelligence*, Vol. 1371, pp. 297-308. Berlin/Heidelberg: Springer-Verlag.
- C13. M. Fjeld, M. Bichsel and M. Rauterberg (1998): BUILD-IT: Intuitive Plant Layout Mediated by Natural Interaction. In Hedegaard and S. Chaiklin (eds.) *Fourth Congress of the International Society for Cultural Research and Activity Theory (ISCRAT 1998)*, pp. 235-236. Aarhus: University of Aarhus.
- C12. S. Schluep, M. Fjeld and M. Rauterberg (1998): Discriminating Task Solving Strategies Using Statistical and Analytical Methods. In T.R.G. Green, L. Bannon, C.P. Warren and J. Buckley (eds.) *Cognition and Co-operation (ECCE9)*, pp. 121-126. Ireland: University of Limerick.
- C11. M. Fjeld, S. Schluep and M. Rauterberg (1998): Quantification of task related activity by statistical and analytical methods. In *Proceedings 7th IFAC/IFIP/IFORS/IEA Symposium on Analysis, Design and Evaluation of Man Machine Systems (IFAC-MMS98)*, pp. 591-596. Oxford: Elsevier Science, Ltd.
- C10. M. Fjeld, S. Schluep and M. Rauterberg (1998): Automatic, action driven classification of problem solving strategies by statistical and analytical methods: a comparative study. In F. E. Ritter and R. M. Young (eds.) *Proceedings of the Second European Conference on Cognitive Modeling (ECCM2)*, pp. 98-103. Nottingham: Nottingham University Press. (invited)
- C9. M. Rauterberg, S. Schluep and M. Fjeld (1998): Modeling of cognitive complexity with Petri nets: an action theoretical approach. In R. Trappl (ed.) *Cybernetics and Systems'98 (EMCSR'98)*, Vol. 2, pp. 842-847. Wien: Austrian Society for Cybernetic Studies.

- C8. M. Rauterberg, M. Fjeld, H. Krueger, M. Bichsel, U. Leonhardt and M. Meier (1997): BUILD-IT: a video-based interaction technique of a planning tool for construction and design. In H. Miyamoto, S. Saito, M. Kajiyama and N. Koizumi (eds.) Proceedings of Work With Display Units (WWDU'97), pp. 175-176. Takorozawa: NORO Ergonomic Lab.
- C7. M. Rauterberg, M. Bichsel, M. Meier and M. Fjeld (1997): A gesture based interaction technique for a planning tool for construction and design. In Proceedings 6th IEEE International Workshop on Robot and Human Communication (RO-MAN/ROMAN'97), (IEEE Catalog Number 97TH8299), pp. 212-217.
- C6. M. Rauterberg, M. Fjeld, H. Krueger, M. Bichsel, U. Leonhardt and M. Meier (1997): BUILD-IT: a computer vision-based interaction technique for a planning tool. In H. Thimbleby, B. O'Conaill and P. Thomas (eds.), People and Computers XII: Proceedings of HCI'97, pp. 303-314. London: Springer.
- C5. M. Rauterberg, M. Fjeld and S. Schluep (1997): Parallel or event-driven goal setting mechanism in Petri net based models of expert decision behavior. In S. Bagnara, E. Hollnagel, M. Mariani and L. Norros (eds.) Proceedings of the Sixth European Conference on Cognitive Science Approaches to Process Control (CSAPC'97), pp. 98-102.
- C4. M. Rauterberg, M. Fjeld. and S. Schluep (1997): Goal setting mechanism in Petri net models of human decision making. In Proceedings of IEEE International Conference on Systems, Man and Cybernetics (SMC'97) (Vol. 3, IEEE Catalog Number 97CH36088-5), pp. 2696-2701.
- C3. M. Rauterberg and M. Fjeld (1997): An Analyzing and Modeling Tool Kit for Human-Computer Interaction. In M.J. Smith, G. Salvendy and R.J. Koubek (eds.), Design of Computing Systems: Social and Ergonomic Considerations (HCI'97) (Advances in Human Factors/Ergonomics, Vol. 21B), pp. 589-592. Amsterdam: Elsevier.
- C2. M. Rauterberg, S. Schluep and M. Fjeld. (1997): How to model behavioral and cognitive complexity in human computer interaction. In Proceedings 6th IEEE International Workshop on Robot and Human Communication (RO-MAN/ROMAN'97), (IEEE Catalog Number: 97TH8299), pp. 320-325.
- C1. H. Lemonnier, S. Selmer-Olsen, A. Aarvik and M. Fjeld (1991): The effect of relaxed mechanical non-equilibrium on gas-liquid critical flow modeling. In Proceedings 27th ASME/AIChE/ANS National Heat Transfer Conference.

### Book Chapters

- BC4. M. Fjeld, B. M. Voegtli and P. Juchli (2004): Tangible User Interfaces, Learning, and Design. In G. Boorman (ed.): *Total Interaction*. Basel/Berlin/Boston: Birkhäuser Publishers. (invited)
- BC3. R. Egloff, M. Fjeld, J. Holzer, M. Kurath, M. Michel, C. Küffer, D. Thurnherr, T. Schildhauer, C. Wiedmer (2001): Kollegiatinnen und Kollegiaten. In (H. Novotny, M. Weiss, and K. Hänni, eds.) *Jahrbuch 2001 des Collegium Helveticum der ETH Zürich*, pp. 7-107. v/d/f Hochschulverlag AG, Zürich.
- BC2. K. Höger, M. Bichsel, M. Engeli, M. Fjeld, K. Lauche (2001): Build-It Competition: Collaborative Design with New Interface Technologies. In M. Engeli (ed.) bits and spaces: CAAD for physical, virtual, hybrid realms, pp. 26-31. Basel/Berlin/Boston: Birkhäuser Publishers. (invited)
- BC1. M. Bichsel, M. Fjeld, V. Hrdliczka, K. Lauche and F. Voorhorst (1999): Build-it-Feasible. In E. Ulich (ed.) *Optimierung der Produkt- und Prozessentwicklung* (In English: Optimization of Product and Process development), pp. 33-49. Zurich: v/d/f Hochschulverlag AG.

## Books

- B5. M. Fjeld and M. Takatsuka (2006) (editors): Proceedings First IEEE International Workshop on Horizontal Interactive Human-Computer Systems, IEEE Computer Society, Los Alamitos CA, Washington, Tokyo.
- B4. M. Fjeld (2003) (guest editor): Augmented Reality-Usability and Collaborative Aspects. Special Issue of International Journal of Human-Computer Interaction, Vol. 16:3.
- B3. M. Fjeld (2001): Designing for tangible interaction. Ph.D. dissertation at the Swiss Federal Institute of Technology, dissertation number 14229.  
(Electronic publication at: <http://e-collection.ethbib.ethz.ch/cgi-bin/show.pl?type=diss&nr=14229>)
- B2. A. Aarvik and M. Fjeld and (1990): Numerical studies of two-phase flow through a nozzle. M.Sc. dissertation at INPG and ENSIMAG (Grenoble, F) and NTNU (Trondheim, Norway).
- B1. M. Fjeld and O.G.Stein (1989): Parallele Runge-Kutta metoder. B.Sc. dissertation at NTNU (Trondheim, Norway).

## Peer-Reviewed Conference Videos, Demos, and Posters (separately enclosed CD offers all videos)

- V9. T. H. Andersen, R. Huber, A. Kretz, M. Fjeld (2006): Feel the Beat: Direct Manipulation of Sound during Playback (video). Accompanies paper in Proc. IEEE International Workshop on Horizontal Interactive Human-Computer Systems (TableTop2006), pp. 123-124.
- V8. J. Almgren, R. Carlsson, H. Erkkonen, J. Fredriksson, S. Moller, H. Rydgard, M. Österberg, K. Bötschi, B. Voegtli, and M. Fjeld (2005): Tangible User Interface for Chemistry Education: Visualization, Portability, and Database (video). Accompanies paper in Proc. SIGRAD 2005, Linköping University Electronic Press, pp. 19-24.
- V7. A. Kretz, R. Huber, M. Fjeld (2005): Force Feedback Slider: An interactive device for learning dynamic system behavior (video). Accompanies paper in Proc. of IEEE Int. Conf. on Advanced Learning Technologies, pp. 457-458.
- V6. M. Fjeld, B. Voegtli, P. Juchli (2003): Augmented Chemistry: An Interactive Educational Workbench (live demo). Interactive Experience at INTERACT 2003.
- V5. M. Fjeld and B. Voegtli (2002): Augmented Chemistry: An Interactive Educational Workbench (video). In the video program of the International Symposium on Mixed and Augmented Reality (ISMAR) 2002, pp. 259-260.
- V4. C. Hitzke, M. Fjeld, S. Schlupe and S. Guttormsen Schär (2002): Learning Content Production: A Pragmatic Approach (poster). ED-MEDIA 2002, World Conference on Educational Multimedia, Hypermedia, and Telecommunications.
- V3. M. Fjeld, F. Voorhorst, M. Bichsel, H. Krueger and M. Rauterberg (2000): Navigation Methods for an Augmented Reality System (video). In the video program / extended abstracts of CHI 2000, pp. 8-9. (Mentored by Prof. Dr. Terry Winograd, Human-Computer Interaction, Stanford University).
- V2. M. Fjeld (1999): Tangible Interaction and Navigation (live demo). At the Conference for Handheld and Ubiquitous Computing (HUC 99) in Karlsruhe, Germany (invited).
- V1. M. Rauterberg, M. Fjeld, H. Krueger, M. Bichsel, U. Leonhardt and M. Meier (1998): BUILD-IT: A Planning Tool for Construction and Design (video). In the video program of CHI'98, pp. 177-178.

## Professional Activities

### Competitive Personal Grants

2000-2001	Postdoctoral Scholarship, granted by <i>Collegium Helveticum</i> , Switzerland	(US\$ 23,000)
1998-2000	Ph.D. Scholarship, granted by the <i>Research Council of Norway</i>	(US\$ 105,000)
1989-1990	M.Sc. Scholarship, granted by the <i>Industry Foundation of Norway</i>	(US\$ 3,000)
1989-1990	Exchange Student Scholarship, granted by the <i>French Ministry of Science</i>	(US\$ 7,000)
1984-1989	Undergraduate Scholarship, granted by the <i>City of Bergen</i> , Norway	(US\$ 5,000)

### Project Grants (projects headed by M. Fjeld unless otherwise stated)

2006-2007	<i>Swedish Emergency Management Agency</i> , Collab. ETH, CTH	(US\$ 35,000)
2005-2006	<i>STINT</i> , Collaboration Chalmers – ETH Zurich in VR and AR	(US\$ 18,000)
2003-2004	<i>CTI</i> , Evaluation of a Tangible Workbench for Chemistry Education	(US\$ 105,000)
2002-2005	<i>CTI</i> , KnowledgeMap: Interactive knowledge representation (partly realized)	(US\$ 785,000)
1997-1999	<i>CTI</i> , BUILD-IT: Tangible Interaction Collaboratory (Head: M. Bichsel)	(US\$ 250,000)
1997-1998	<i>NF</i> , AMME: Cognitive Modeling Toolkit (Head: M. Rauterberg)	(US\$ 100,000)

### Service to the Professional Community

- Reviewer for the *Natural Sciences and Engineering Research Council of Canada (NSERC)*, *Discovery Grant 2006*.
- Reviewer for the *Seventh Australasian User Interface Conference, AUIC 2006*.
- Reviewer for the *Computer Science in Russia (CSR) 2006* conference.
- Reviewer for the *4th International Conference on Pervasive Computing*.
- Reviewer for the *CHI 2006* conference.
- Reviewer for the *IEEE & ACM International Symposium on Mixed and Augmented Reality 2005*.
- Reviewer for *Multimedia Systems*, ACM/Springer Publisher.
- Reviewer for *Natural Sciences and Engineering Research Council of Canada (NSERC)*, *Discovery Grant 2005*.
- Reviewer for *IEEE & ACM International Symposium on Mixed and Augmented Reality 2004*.
- Reviewer for *IEEE Virtual Reality 2004*.
- Reviewer for *ISWC2003, 7th IEEE International Symposium on Wearable Computers*.
- Reviewer for *IEEE & ACM ISMAR 03, the Second International Symposium on Mixed and Augmented Reality*.
- Reviewer for *INTERACT2003, the Ninth IFIP TC13 International Conference on Human-Computer Interaction*.
- Guest editor for a special issue *International Journal of Human-Computer Interaction* on Augmented Reality.
- Editorial board member of *International Journal of Web Engineering and Technology (IJWET)*, Inderscience (invited).
- Reviewer for the *Human Factors: The Journal of the Human Factors and Ergonomics Society* (invited).
- Reviewer for *International Journal of Universal Access in the Information Society*, Springer (invited).
- Reviewer for the *CHI 2001* conference.
- Reviewer for the *CSCW, Computer Supported Cooperative Work*, the journal of collaborative computing (invited).

## Conference and Workshop Organization

- Program Committee member of *ACM Tangible and Embedded Computing (TEI'07)*.
- Program Committee member of *ACM NordicCHI 2006*.
- Organizing Committee for *Scandinavian Student Interaction Design Research Conference 2006*.
- Co-program-chair for *IEEE International Workshop on Horizontal Interactive Human-Computer System 2006*.
- Main organizer of *STINT International Ph.D. workshop on Augmented and Virtual Reality 2005*.
- Organizing Committee for *IEEE International Workshop on Horizontal Interactive Human-Computer System 2005*.
- Program Committee member of *IEEE & ACM International Symposium on Mixed and Augmented Reality 2004*.
- Program Committee member at the *INTERACT 2003 Conference*.
- National Organizing Committee member at the *INTERACT 2003 Conference*.
- Session chair for a special session on "Augmented Reality: Usability and Collaboration" at the *HCI International 2001, 9<sup>th</sup> International Conference on Human-Computer Interaction*. Session site: [www.fjeld.ch/hcii2001](http://www.fjeld.ch/hcii2001) (invited).
- Session chair for a session on "Fuzzy and Neural Network" the *7th IFAC/IFIP/IFORS/IEA Symposium on Analysis, Design and Evaluation of Man-Machine Systems (IFAC-MMS98)*, September 1998, Japan.

## Conference and Workshop Participation by Invitation

- Sustainability in the Information Society: Pervasive Computing. EMPA, June 2002.
- Usability of Tangible Interaction. Talk held at the Tecfa Workshop, Geneva University, September 2001.
- Using statistics tools to evaluate tools in Human-Computer Interaction. Talk held at the Statistical User Seminar, ETH, Zurich, January 2001.
- BUILD-IT: An intuitive planning tool based on natural interaction. Talk held at an international Ph.D. workshop in Dobogókő, Hungary, July 1998.
- Use of Questionnaires in the Usability Testing of Public Automates. Talk held at an international workshop on Transferring Usability Engineering to Industry in Gdansk, Poland, June 1998.
- Modeling of cognitive structures. Talk held at an international Ph.D. workshop in Balatonfüred, Hungary, July 1997.
- Views from an Alumnus. Talk held at *Ten Years of Industrial Mathematics Program at Norwegian University of Science and Technology (NTNU)*, July 1993. (Host: Syvert P. Nørsett)

## Invited Presentations

01/2006	NICTA and ViSLAB, <i>University of Sydney</i> (Host: Masahiro Takatsuka)
11/2005	Department of Psychology, <i>University of Basel</i> (Host: Javier Bargas-Avila)
11/2005	<i>Università della Svizzera italiana</i> , Lugano, Switzerland (Host: Mehdi Jazayeri)
11/2005	GLOBIS, <i>Computer Science, ETH Zurich</i> (Host: Moira C. Norrie)
07/2005	IPPR Lab, <i>National Taiwan University</i> (Host: Yi-Ping Hung)
07/2005	Interaction Technology Lab, <i>University of Tokyo</i> (Host: Masanori Sugimoto)
03/2005	DIKU, <i>University of Copenhagen</i> (Host: Erik Frøkjær)
11/2003	<i>Technische Universität München</i> , Germany (Host: Gudrun Klinker)
11/2003	<i>Ludwig-Maximilians-Universität München</i> , Germany (Host: Albrecht Schmidt)
06/2003	<i>Chalmers University</i> , Sweden (Host: Jan Smith)
06/2003	<i>IT-Universitetet i Göteborg</i> , Sweden (Host: Berner Lindström)
05/2003	<i>Waterloo University</i> , Canada (Host: Andrew J. Malton)
11/2002	<i>Christian Michelsen Research (CMR)</i> , Bergen, Norway (Host: Tor Langeland)
05/2002	<i>Università della Svizzera italiana</i> , Lugano, Switzerland (Host: Mehdi Jazayeri)
04/2001	<i>University of California, Irvine</i> , USA (Host: Alfred Kobsa)
03/2001	<i>University of Umeå</i> , Sweden (Host: Lars-Erik Janlert)
05/2000	<i>University of Bergen</i> , Norway (Host: Konrad Morgan)
12/1998	<i>Technical University of Eindhoven</i> , The Netherlands (Host: Matthias Rauterberg)
07/1998	<i>University of Bamberg</i> , Germany (Host: Dietrich Dörner)

04/1998      *CeBIT Exhibition, Hannover, Germany*  
02/1998      *VISION Exhibition for Visualization, Zurich, Switzerland*  
03/1994      *ITEC Exhibition for Simulation and Training, London, United Kingdom*

### **Administrative Service**

2006              *Chalmers Departmental Environment and Equality Board*  
1988-1989      *European Board of Students of Technology, cofounder*  
1988-1989      *Norwegian University of Science and Technology, elected at the Board of University*  
1987-1987      *Norwegian University of Science and Technology, elected at the Board of Student Welfare*

### **Consulting**

2003              Consulted for *LivingRoom*, Basel, Switzerland, Augmented Reality.  
2003              Consulted for *Macrofocus GmbH*, Zurich, Switzerland, Usability Engineering.  
2001              Consulted for *3hird.com*, Gothenburg, Sweden on 6DOF interactive design and evaluation.  
2000              Consulted for *HyperStudio*, Basel, Switzerland on Augmented Reality (AR) technologies.  
1997-1998      Consulted for *TellWare GmbH*, Zurich, Switzerland on vision-based interactive systems.

## **Teaching Activities**

### **Courses Developed and Taught at Chalmers University of Technology, Sweden**

Title:              Ph.D. course on AR and VR [http://www.icvr.ethz.ch/vrai\\_english/projekte/fertigprojekte/stint](http://www.icvr.ethz.ch/vrai_english/projekte/fertigprojekte/stint)  
Workshop given together with PD Dr. A. Kunz, ICVR, ETH Zurich.  
Language:        English  
Period:            November 2005 and June 2006  
Hours:            20 hours lectures and 10 hours laboratory work  
Students:        20 (Nov. 05) and 15 (June 06) Ph.D. students in computer and engineering sciences

Title:              Graduate course in HCI, [http://www.cs.chalmers.se/Cs/Education/Courses/g\\_mdi/2005/](http://www.cs.chalmers.se/Cs/Education/Courses/g_mdi/2005/)  
Language:        English  
Period:            Sept. – Nov. 2005  
Hours:            26 hours lectures and 26 hours laboratory work  
Students:        20 M.Sc. students in computer science

Title:              Human-Computer Interaction, <http://www.cs.chalmers.se/Cs/Education/Courses/mdi/2006>  
Language:        English and Swedish  
Period:            March – May 2004, Sept. – Nov. 2004, Jan. – March 2005, Jan. – March 2006  
Hours:            26 hours lectures and 26 hours laboratory work  
Students:        120 bachelor students in computer science

### **Courses Developed and Taught at Zurich University, Dept. of Computer Science, Switzerland**

Title:              Human-Computer Interaction, <http://www.ifi.unizh.ch/ddis/teaching/hci2006/>  
Language:        English and German  
Period:            November-December 2006  
Hours:            16 hours lectures and 6 hours laboratory work, altogether 22 hours of teaching  
Students:        16 bachelor students in computer science

### **Courses Developed and Taught at University of Applied Sciences of Rapperswil (HSR), Switzerland**

Title: User Interfaces 2  
Language: English and German  
Period: November 2003 – February 2004  
Hours: 16 hours lectures and 16 hours laboratory work, altogether 32 hours of teaching  
Students: 25 bachelor students in computer science

### **Courses Developed and Taught at Information Science (IFI), University of Bergen, Norway**

Title: Interactive Systems: Design and Usability Aspects  
Language: English and Norwegian  
Period: August – December 2002  
Hours: Graduate research seminar, offered as 8 (2+3+3) full days, altogether 56 hours of teaching  
Students: 33 master and doctoral students of information science (majority), HCI, and linguistics

### **Courses Developed and Taught at HyperWerk, School for Design and Media, FHBB, Basel, Switzerland**

Title: Touchability of Touchscreens: Design and Usability using Director 8.5  
Language: English and German  
Period: June 2003  
Hours: 24 hours offered as a 3 days' workshops  
Students: 6 bachelor students in multimedia and design

Title: Human-Computer Interaction I (HCI I) & Human-Computer Interaction II (HCI II)  
Language: English and German  
Period: January and February 2002  
Hours: HCI I: 22 hours, HCI II: 25 hours, each offered as a 4 days' workshops  
Students: 19 (HCI I) and 12 (HCI II) bachelor students in multimedia and design

### **Course Developed and Taught at Hochschule für Gestaltung und Kunst (HGKZ), Zurich, Switzerland**

Title: Theories of Human-Computer Interaction  
Language: German  
Period: May 2002, April 2003, April 2004, May 2005  
Hours: 20 hours offered as a 4 days' workshop  
Students: 15 bachelor students in interaction design

### **Lectures Taught at ETH Zurich, Switzerland**

Title: Interactive Systems (principal teacher: Prof. Dr. Dr. Helmut Krueger): lessons on new input devices  
Language: German  
Period: 1999-2003  
Hours: 2 hours per semester  
Students: 50 bachelor students in computer science and electrical engineering

### **Workshop Developed and Taught at ETH Zurich, Switzerland**

Title: Tangible Interaction Workbench  
Language: German  
Period: Spring Term 2003  
Hours: 30 hours per semester  
Students: 12 bachelor students in electrical engineering and computer science

### **Workshop Taught at ETH Zurich, Switzerland**

Title: Remote Collaboration: M.Sc. and M.B.A. students from ETH Zurich, TU Karlsruhe, U. of Frankfurt  
Language: German  
Period: Winter term 2001/2002  
Hours: 30 hours per semester  
Students: 40 bachelor students in electrical engineering and computer science

### **Courses Taught at the Royal Naval Academy, Bergen, Norway**

Title: Cryptography, Telex, and Communication  
Language: Norwegian  
Period: 1988-1989  
Hours: 6 hours per week  
Students: 20 undergraduate students

### **Doctoral Advisor, Principal / Associate**

Christoph Ganser, Innovation Center Virtual Reality (ICVR), ETHZ (2006-), 20% advisor (with Prof. Andreas Kunz)  
Martin Kuechler, Innovation Center Virtual Reality, ETH Z (2005-), 30% advisor (with Prof. Andreas Kunz)  
Ramon Hofer, Innovation Center Virtual Reality (ICVR), ETHZ (2005-), 50% advisor (with Prof. Andreas Kunz)  
Rikard Lindell, Mälardalens University (2005-), Associate advisor.  
Eva Eriksson, Department of Computer Science, Chalmers U. of Technology (2005-2006), Principal advisor.

### **Doctoral Examiner, Member of Doctoral Committee**

Niklas Elmqvist, Computer Science and Engineering, Chalmers (2006)  
Philippe Zimmerman, Work Sciences (ZOA), ETHZ (2005-2006)  
Hanna Landin, Department of Computer Science, Chalmers U. of Technology (2003-)  
Sus Lundgren, Department of Computer Science, Chalmers U. of Technology (2003-)  
Lena Berglin, Department of Computer Science, Chalmers U. of Technology (2003-)  
Ilona Heldal, School of Technology Management and Economics, Chalmers U. of Technology (2003-2004)

### **Supervision of master Students – M.Sc. project**

Julio Jenaro (2005-2006), Chalmers TH: *ForceFeedbackSlider, uController Design and Development*.  
Ali Sharokni (2005-2006), Chalmers TH: *ForceFeedbackSlider, Application Design and Development*.  
Andreas Sandlund, David Hagström (2005-2006), Chalmers TH: *AstraZeneca CAD Model Generation*.  
Johan Ågren (2005-2006), Chalmers TH: *SpaceLab Usability Evaluation – Recommended Design Improvements*

Fredrik Säll, Robert de Bésche (2004-2005), Chalmers TH: *Migrating Qualitative Data*.  
 Wolfgang Mähr (2005), Chalmers TH: *eMotion Estimation of the User's Emotional State by Mouse Motions*.  
 Anna Brzeska (2004), Chalmers TH: *Web-usability of Oslo University Library*.  
 Angie Born (2002-2003), HypwerWerk FHBB, Basel: *Adaptive Intranets?*  
 Benedikt Voegtli, Juchlin (2001), HyperWerk FHBB, Basel: *Augmented Collaboration*  
 Domenico Signorello (2000), ETH Zurich: *Experimental Design for Evaluation of Navigation Tools in BUILD-IT*.

### **Supervision of undergraduate Students – Semester project (recorded only until 2003)**

Bach, Borter, HypwerWerk FHBB, Basel (2003): *Visual attention flexibility with touch screens*.  
 Bressan, De Gottardi, Lozio, Corti, Fregosi, Ortelli, SUPSI, Manno (2003): *Heuristic Evaluation of [www.ti.ch](http://www.ti.ch)* (at request)  
 Abt, Nart, Schlachter, Wassmer (2003), ETH Zurich: *Augmented Chemistry: System Configuration and ARToolkit*.  
 Frech, Hobi, Landis, Micijevic, Winterhalter (2003), ETH Zurich: *Augmented Chemistry: Use Cases and Development*.  
 Gehring, Soland, Stadelmann (2003), ETH Zurich: *Augmented Chemistry: Software Architecture and Documentation*.  
 Rey, Schaller, Zurbruggen (2002-2003), ETH Zurich: *Evaluation of Positioning Task in a CAD System*.  
 Berre, Syverinsen, Salomonsen, Ingvaldsen (2002), U. of Bergen: [Augmented reality lab on IFI](#).  
 Reigstad, Louis, Reigstad, Gjellesvik (2002), U. of Bergen: [Augmented Reality used in CSCL](#).  
 Løvfall, Markestad, Trovåg, Hove (2002), U. of Bergen: [Usability Analysis of Electronic form - www.bergen-guide.no](#)  
 Markestad, Gudem, Eide, Falch (2002), U. of Bergen: [Innføring av ny teknologi - brukerundersøkelse ved Bergen Kino](#).  
 Brunstad, Eie (2002), U. of Bergen: [Adding a D to 2D - a better interface?](#)  
 Bergli, Johnsen (2002), U. of Bergen: [Computer-Aided Surgery - a literature study](#).  
 Liseth, Breien, Hole, Halse, Halling, Breien (2002), U. of Bergen: [A new Graphical User Interface for PONS](#).  
 Pettersen, Sandal, Rønning, Håland, Solberg, Pedersen (2002), U. of Bergen: [Brukervennlighetsstudie av Gaia Trafikk AS](#)  
 Gähwiler (2002), ETH Zurich: [Comparison of Tangible Tools: CAD alternative](#).  
 Meerstetter, Jacoma, Wohlwend (2002), ETH Zurich: [Touch Screen: Task Design](#).  
 Engeler, Haemmerle, Nobs (2002), ETH Zurich: [Touch Screen: Experimental Set-up](#).  
 Bergman, Lundgren, Meurer, Busch (2001) U. of Linköping and U. of Karlsruhe: [Touch Screen Evaluation](#).  
 Dellsperger, Leuzinger, Schoenes (2001), ETH Zurich: [KnowledgeMap Prototype in Java 3D](#)

## **Computer Skills, Language Skills, Clearances, and Memberships**

### **Operating System, Environments and Programming Languages**

UNIX, XP, DEC, x-motif, vax-vms, Rational, Mathematica, SYSTAT, Macromedia Director8.  
 Pascal, Fortran, ADA, C++, Java, Lingo.

### **Written and Spoken Languages**

English, French, German, Norwegian, Danish, Swedish, some Italian

### **Clearances and Certifications**

NATO Cryptic Top Secret	(5 months clearing required)
French Civil Nuclear Research Clearance	(3 months clearing required)
Swiss Federal Army Industry Collaborator	(2 months clearing required)
Navigation Certificate for Small Sailing Boats	
Instructor Certificate for Cross-country Skiing	

### **Entry counts in HCI publication databases**

HCI Bibliography	16 entries	<a href="http://www.hcibib.org/authors.html">www.hcibib.org/authors.html</a>
DBLP	20 entries	<a href="http://www.informatik.uni-trier.de/~ley/db/indices/a-tree/f/Fjeld:Morten.html">www.informatik.uni-trier.de/~ley/db/indices/a-tree/f/Fjeld:Morten.html</a>

### **Memberships**

Since 1999	Association for Computing Machinery (ACM)
Since 2002	Usability Professionals' Association (UPA)
Since 2004	IEEE