

CURRICULUM VITAE

DR. MARTIN RAUBAL

Department of Geography
University of California at Santa Barbara
U.S.A.

Current Affiliation

Assistant Professor
Department of Geography
University of California at Santa Barbara
5713 Ellison Hall
Santa Barbara, CA 93106-4060

Voice: +1 (805) 893-4839
Fax: +1 (805) 893-3146
raubal@geog.ucsb.edu
<http://www.geog.ucsb.edu/~raubal/>

Personal

Nationality: Austrian
Date of Birth: 11 September 1968
Place of Birth: Vienna, Austria
Status: Married, 2 children
Languages: German, English, Italian (beginner's level)

Education

Habilitation (Venia legendi in Geoinformatics), University of Münster, Germany, 2006
Thesis title: Cognitive Engineering for Geoinformatics

Dr. techn., Institute for Geoinformation, Vienna University of Technology, Austria, 2001 (with honors)

Thesis title: Agent-based Simulation of Human Wayfinding: A Perceptual Model for Unfamiliar Buildings

Advisors: Andrew U. Frank, Werner Kuhn

Dipl.-Ing. (M.S.), Surveying Engineering, Vienna University of Technology, Austria, 1998
Advisor: Andrew U. Frank

M.S., Spatial Information Science and Engineering, University of Maine, U.S.A., 1997
GPA: 4.0

Thesis title: Structuring Wayfinding Tasks with Image Schemata

Advisors: Max J. Egenhofer, M. Kate Beard-Tisdale, Werner Kuhn, and Andrew U. Frank

Professional Appointments

- 2006 – Assistant Professor
Department of Geography
University of California at Santa Barbara, U.S.A.
Faculty member of Cognitive Science Program (since 2007)
University of California at Santa Barbara, U.S.A.
- 2005 – 2006 Junior Professor (W1)
Institute for Geoinformatics
University of Münster, Germany
- 2004 – 2005 Assistant Professor (C1)
Institute for Geoinformatics
University of Münster, Germany
- Oct. 2003 – Sep. 2004 Substitute Associate Professor (C3)
Institute for Geoinformatics
University of Münster, Germany
- 2002 – 2003 Assistant Professor (C1)
Institute for Geoinformatics
University of Münster, Germany
- 1998 – 2002 *(Graduate) Research Assistant*
Institute for Geoinformation
Vienna University of Technology, Austria
- 1996 – 1997 *Graduate Research Assistant*
National Center for Geographic Information and Analysis (NCGIA) and
Department of Spatial Information Science and Engineering
University of Maine, U.S.A.
- 1995 – 1996 *Teaching Assistant*
Department of Geoinformation
Vienna University of Technology, Austria

Awards and Honors

- 2005 Intergraph Award (1.000\$) for most innovative research paper at AGILE 2005 (“Mappings for Cognitive Semantic Interoperability”)
- 2003 AGILE 2003 Best Paper Award for “Implementing Semantic Reference Systems” (Kuhn and Raubal)
- 2003 Intergraph GeoMedia Education Grant (to Institute for Geoinformatics, University of Münster) based on ‘Finding suitable locations for airports in Germany’ and ‘Skill building lesson plans’ from Introduction to Digital Cartography course 2002
- 1997 Award for Outstanding Academic Achievement, University of Maine
- 1996, 1997 Research Assistantship, funded by the National Center for Geographic Information and Analysis (NCGIA), U.S.A.
- 1996 Scholarship for scientific work in a foreign country, Austrian Government

Professional Activities

- 2008 Member of program committee of 11th AGILE International Conference on Geographic Information Science (Girona, Spain)
- 2007 Invited speaker at 4th Junior Professors Symposium (Bremen, Germany)
- 2007 Member of program committee of 7th International Workshop on Web and Wireless GIS (W2GIS'07) (Cardiff, UK)
- 2007 Co-organizer of Workshop on Semantic Similarity Measurement and Geospatial Applications (within COSIT 2007), Mt Eliza, Melbourne, Australia
- 2007 Member of program committee of COSIT 2007 – Ninth International Conference on Spatial Information Theory (Mt Eliza, Melbourne, Australia)
- 2007 Member of review committee of Applications of Spatial Cognition for Intelligent Assistance Systems Workshop (at KI 2007 - 30th German Conference on Artificial Intelligence (Osnabrueck, Germany)
- 2007 Member of program committee of GI-Days 2007 – Young Researchers Forum (Münster, Germany)
- 2007 Member of program committee of 10th AGILE International Conference on Geographic Information Science (Aalborg, Denmark)
- 2007 Personal invitation to 13th German-American Frontiers of Science Symposium (Irvine, California) by Alexander von Humboldt-Foundation, Germany (in cooperation with U.S. National Academy of Sciences).
- 2006 Program Chair of GIScience 2006 – Fourth International Conference on Geographic Information Science (Münster, Germany)
- 2006 Invited speaker at 9th Austrian Surveyor's Day (Krems, Austria)
- 2006 Visiting Professor at the Institute for Geoinformation and Cartography, Vienna University of Technology, Austria (1 week, sponsored by Erasmus)
- 2006 Member of program committee of Space Syntax and Spatial Cognition Workshop (Bremen, Germany)
- 2006 Member of review committee of Spatial Cognition 2006 conference (Bremen, Germany)
- 2006 Member of program committee of 3rd CoMoGIS2006 International Workshop On Conceptual Modeling for Geographical Information Systems (Tucson, Arizona)
- 2006 Member of program committee of 6th International Workshop on Web and Wireless GIS (W2GIS'06) (Hong Kong, China)
- 2006 Member of scientific committee of MDSGEO'06 - 1st International Workshop on Modern Decision Support in Geographical Domains: Models, Methods, and Tools (Thessaloniki, Greece)

- 2006 Invited participant at Dagstuhl Seminar “Towards Affordance-Based Robot Control” (Dagstuhl castle, Germany)
- 2006 Member of program committee of AMTA’06 – First International Workshop on Agents and Multiagent Systems, from Theory to Application (Québec City, Canada)
- 2006 Member of program committee of AGILE Conference 2006 (Visegrad, Hungary)
- 2005 Invited participant at Dagstuhl Seminar “Spatial Cognition: Specialization and Integration” (Dagstuhl castle, Germany)
- 2005 Organizer of Workshop on Cognitive Engineering for Geospatial Services (within COSIT 2005), Ellicottville, New York (with Pragma Agarwal)
- 2005 Guest lecturer at the Department of Geography, University of Klagenfurt, Austria (1 week, sponsored by Erasmus)
- 2005 Elected as member of AGILE (Association Geographic Information Laboratories Europe) Council for 4-year term
- 2005 Member of program committee of COSIT 2005 – (Ellicottville, New York)
- 2005 Member of program committee of GI-Days Münster 2005 – Geosensor networks: from research to applications
- 2005 Member of program committee of AGILE Conference 2005 (Estoril, Portugal)
- 2004 Invited participant at NCGIA Specialist meeting on Spatial Webs (Santa Barbara, U.S.A.)
- 2004 Co-organizer of Workshop on the Potential of Cognitive Semantics for Ontologies (within FOIS 2004), Torino, Italy
- 2004 Guest lecturer at the Department of Geography, University of Klagenfurt, Austria (1 week, sponsored by Erasmus)
- 2004 Member of review committee of Spatial Cognition 2004 conference (Frauenchiemsee Island, Bavaria, Germany)
- 2004 Member of program committee of GIScience 2004 – Third International Conference on Geographic Information Science (Maryland, U.S.A.)
- 2004 Program Chair of GI-Days Münster 2004 – GI & Mobility
- 2004 Invited speaker at Euresco Conference on Geovisualisation (Crete, Greece)
- 2004 Member of program committee of AGILE Conference 2004 – GI in the European Research Area (Crete, Greece)
- 2003 Invited lecturer at the International Spatial Cognition Summer Institute, Bad Zwischenahn, Germany (sponsored by the International Quality Network on Spatial Cognition)
- 2003 Guest lecturer at the Department of Geography, University of Klagenfurt, Austria (1 week, sponsored by Erasmus)

- 2003 Euresco Conference Modeling for Wayfinding Services, Bad Herrenalb, Germany: Invited speaker
- 2003 Member of program committee of GI-Days Münster 2003 – Geodata- and service infrastructures: from research to applications
- 2002 Visitor at the Department of Geography, University of Utah, Salt Lake City (2 weeks, sponsored by DAAD, Germany)
- 2002 ACTOR2002 (NSF-sponsored research workshop on Action-Oriented Approaches in Geographic Information Science, Maine, U.S.A.): Invited participant
- 1996 NCGIA I21 - Specialist Meeting “Formal Models of Common-Sense Geographic Worlds” in San Marcos, Texas (Oct. 30th - Nov. 3rd 1996): Participant and rapporteur

Funded projects

2006 – 2008	Semantic Similarity Measurement for Role-Governed Geospatial Categories (DFG)	265 kEuro
2006 – 2007	Novel Technologies for Spatial Decision Support (DAAD)	10 kEuro
2004 – 2006	Semantic Reference Systems for Geospatial Information (DFG, with W. Kuhn)	130 kEuro
2004	Researcher grant (University of Münster)	4 kEuro

Active project participation

- 2004 – 2006 MEDIS (Towards sustainable water use on Mediterranean Islands: addressing conflicting demands and varying hydrological, social and economic conditions) Project (EC): Project leader at ifgi
- 1998 – 2000 PANEL-GI (Pan European Link for Geographical Information) Project (EC): Organization and research
- 1998 – 1999 COMMUTER (Co-operative multi-dimensional multimedia and topological elements reintegration) Project (EC): Research

Editorial board

- Transactions in GIS, *Blackwell* (2006 -)
- Journal of Location Based Services, *Taylor & Francis* (2006 -)
- Geography Compass, *Blackwell* (2006 -)

Referee for

Journals

- International Journal of Geographical Information Science (2003 -)
- Transactions in GIS (2006 -)
- Spatial Cognition and Computation (2002 -)

ISPRS Journal of Photogrammetry and Remote Sensing (2005 -)
Professional Geographer (2005 -)
Cartography and Geographic Information Science (2007 -)
Environment & Planning B (2007 -)
Journal of Geographical Systems (2007 -)
Computers, Environment and Urban Systems (2007 -)

Conferences

Conference on Spatial Information Theory, COSIT (2003 - 2007)
Conference on Geographic Information Science, GIScience (2004)
Conference on Human Factors in Computing Systems, CHI (2006)
Spatial Cognition (2004 - 2006)
Conference on Ubiquitous Computing, UbiComp (2003)
AGILE Conference on Geographic Information Science (2004 - 2008)
Münster GI-Days (2003 - 2007)
World Council on Transportation Research (WCTR) Meeting (2007)

Organizations

U.S. National Science Foundation
Science Foundation Ireland
German Science Foundation

Industry Experience

1993 – 1995	Part-time work as a surveyor for the Surveying Bureau “Feuereis & Lichtenstoeger”, Austria
1987 – 1990	6 months full-time work as a surveyor for the Austrian Surveying Agency (BEV)

Teaching

Fall 2007	GEOG 176A, Intro to GIS (Lecture & Labs, Undergrad) GEOG 118, Cartographic Design (Lecture & Labs, Undergrad)
Spring 2007	GEOG 184C, Geographic Visualization (Lecture & Labs, Undergrad) GEOG 288MR, Time in GIS (Seminar, Grad)
Winter 2006	GEOG 596, Directed Reading & Research “Applied Spatial Cognition” (with Dan Montello) GEOG 597, Independent Study – PhD Exam Introduction to Digital Cartography (Labs, 1 st year)
Summer 2006	Introduction to Digital Cartography (Labs, 2 nd year) Pedestrian navigation services (Study project, 4 th year) Introduction to Geographic Information Science (Lecture part, 3 rd year) Semantics and Ontologies in Geographic Information Services – Theory and Applications (Lecture & Labs at Vienna University of Technology; with M. Lutz)

Winter 2005	Cognitive Aspects in Geographic Information Science (Seminar, 4 th year) Pedestrian navigation services (Study project, 4 th year) Dynamic route planning (Labs, 4 th year)
Summer 2005	Introduction to Research Methods (Seminar, 4 th year) Introduction to Digital Cartography (Labs, 2 nd year) Semantics and Ontologies in Geographic Information Services – Theory and Applications (Workshop at University of Klagenfurt; with M. Lutz and M. Hall)
Winter 2004	Time in GIS (Seminar, 4 th year) Introduction to Geoinformatics (Labs and lecture part, 2 nd year)
Summer 2004	Introduction to Research Methods (Seminar, 4 th year) Introduction to Digital Cartography (Labs, 2 nd year) Mobile Geocomputing (Labs at University of Klagenfurt, 2 nd year)
Winter 2003	Cognitive Aspects in Geographic Information Science (Seminar, 4 th year) Introduction to Geoinformatics (Labs and lecture part, 2 nd year) Introduction to Digital Cartography (Labs, 2 nd year)
Summer 2003	Cognitive Aspects of Wayfinding (Lecture at Int. Spatial Cognition Summer Institute; with H. Hochmair and S. Timpf) Evaluation of GIS (Lecture at University of Klagenfurt, 2 nd year) Evaluation of GIS (Seminar, 4 th year) Introduction to Digital Cartography (Labs and lecture part, 2 nd year)
Winter 2002	Spatial Cognition and Wayfinding (Seminar, 4 th year) Introduction to Geoinformatics (Labs, 2 nd year)
Summer 2002	Introduction to Digital Cartography (Labs and lecture part, 2 nd year)
Winter 2001	Evaluation of GIS (Lectures & Labs, 5 th year) Introduction to GIS (Labs, 2 nd year) Spatial Information Systems (Labs, 3 rd year) Geographic Information Systems for Computer Scientists (Labs) Spatial Information Systems – Field Camp (Analysis, 4 th year)
Summer 2001	Geometric Data Management (Labs, 4 th year) Geographic Information Systems for Computer Scientists (Labs) Public domain Geographic Information Systems (Labs, 4 th year)
Winter 2000	Evaluation of GIS (Lectures & Labs, 5 th year) Spatial Information Systems (Labs, 3 rd year) Geographic Information Systems for Computer Scientists (Labs) Spatial Information Systems – Field Camp (Analysis, 4 th year) Temporal Data for Geographic Information Systems (Labs, 4 th year)
Summer 2000	Geometric Data Management (Labs, 4 th year) Geographic Information Systems for Computer Scientists (Labs)
Winter 1999	Spatial Information Systems (Labs, 3 rd year) Geographic Information Systems for Computer Scientists (Labs)
Summer 1999	Geometric Data Management (Labs, 4 th year) Geographic Information Systems for Computer Scientists (Labs)

Winter 1995

Spatial Information Systems – Field Camp (Analysis, 4th year, Teaching Assistant)

Ph.D. theses supervised (*: co-supervised)

1. Pultar, E. (in progress): TBD. Department of Geography, University of California at Santa Barbara, U.S.A.
2. Kessler, C. (in progress): Modeling Context for Similarity Measurement. Institute for Geoinformatics, University of Münster, Germany.
3. *Janowicz, K. (in progress): Sim-DL: Towards a Similarity Measurement Theory for Description Logics in GIScience. Institute for Geoinformatics, University of Münster, Germany.

Ph.D. committee member

1. Yoon, S. Y. (in progress): Multilevel structural equation model for household activity and travel behavior pattern considering individual accessibility. Department of Geography, University of California at Santa Barbara, U.S.A.
2. Grossner, K. (in progress): Representing Human History in Spatiotemporal Databases and Digital Atlases. Department of Geography, University of California at Santa Barbara, U.S.A.
3. Dara-Abrams, D. (in progress): Cognitive Modeling of Built Environments. Department of Geography & Department of Psychology, University of California at Santa Barbara, U.S.A.
4. Swobodzinski, M. (in progress): Influence of spatial knowledge on stakeholders decision-making behavior in PPGIS. Department of Geography, State University of San Diego & Department of Geography, University of California at Santa Barbara, U.S.A.
5. Schwering, A. (2006): Semantic Similarity Measurement including Spatial Relations for Semantic Information Retrieval of Geo-Spatial Data. Institute for Geoinformatics, University of Münster, Germany.
6. Steinicke, F. (2006): Multimodal Metaphors for Generic Interaction Tasks in Virtual Environments. Department of Computer Science, University of Münster, Germany.
7. Einspanier, U. (2006): Formal Metamodeling for the Specification and Implementation of Feature Catalogues. Institute for Geoinformatics, University of Münster, Germany.

Master theses supervised (*: co-supervised)

1. *McDaniel, M. (in progress): A Theoretical Basis for Agent-Based Modeling of Lost Person Behavior. Department of Geography, University of California at Santa Barbara.
2. Wilkes, M. (in progress): A similarity measure for climbing routes. Institute for Geoinformatics, University of Münster, Germany. In cooperation with Department of Geography, University of California at Santa Barbara.
3. *Hecht, B. (in progress): Utilizing Wikipedia as a Spatiotemporal Knowledge Repository. Department of Geography, University of California at Santa Barbara.

4. Espeter, M. (2007): Location-based decision support for user groups. Institute for Geoinformatics, University of Münster, Germany. In cooperation with Department of Geography, University of California at Santa Barbara.
5. Panov, I. (2007): A Formal Model for Mobile Map Adaptation in Pedestrian Navigation. Institute for Geoinformatics, University of Münster, Germany. In cooperation with Department of Geography, University of California at Santa Barbara.
6. *Schöning, J. (2007): Interaction of mobile devices with public paper maps. Institute for Geoinformatics, University of Münster, Germany. In cooperation with Department of Geography, University of California at Santa Barbara.
7. Tessmann, S. (2006): Time geography for efficient shared-ride trip planning in transportation networks. Institute for Geoinformatics, University of Münster, Germany.
8. Debal, T. (2006): Optimierung nutzerspezifischer Aufgabenabläufe mit Location Based Services (Optimization of user-specific task processes with Location Based Services). Institute for Geoinformatics, University of Münster, Germany.
9. Kritzler, M. (2006): RFID-Ortungs- und Bewegungsanalyse von transgenen Mäusen zur Untersuchung der Alzheimer-Krankheit (Mousetracking with RFID in a transgenic animal model of Alzheimer's disease). Institute for Geoinformatics, University of Münster, Germany. In cooperation with Institute of Neuro and Behavioural Biology, University of Münster, Germany.
10. Swobodzinski, M. (2006): Route calculation constraints for an indoor navigation service for the blind. Institute for Geoinformatics, University of Münster, Germany.
11. Lautenschütz, A.-K. (2006): Spatial Relations – The influence of scale, context and spatial relation in linguistic topology. Institute for Geoinformatics, University of Münster, Germany. In cooperation with Ordnance Survey, U.K.
12. Wilmes, T. (2005): Technische Nutzbarkeitsanalyse von Triggered Location Services in zellulären Netzen (Technical usability analysis of Triggered Location Services in cellular networks). Institute for Geoinformatics, University of Münster, Germany.
13. Tomberge, P. (2005): Navigation mittels RFID - Navigationsmöglichkeiten durch RFID-Eintrittskarten bei der WM 2006 (Navigation with RFID – navigation solutions through RFID tickets at the 2006 FIFA World Cup in Germany). Institute for Geoinformatics, University of Münster, Germany.
14. Kessler, C. (2004): Design and implementation of argumentation maps. Institute for Geoinformatics, University of Münster, Germany. In cooperation with Department of Geography, University of Toronto, Canada.
15. *Grüning, D. (2004): Ein Werkzeug zur automatischen Ontologie-Übertragung zwischen Haskell und UML (A tool for automatic ontology-transfer between Haskell and UML). Institute for Geoinformatics, University of Münster, Germany.
16. Redbrake, D. (2003): Ontology-driven wrappers for navigation services. Institute for Geoinformatics, University of Münster, Germany.

Publications

Articles in Refereed Journals

1. **M. Raubal**, S. Winter, S. Teßmann, and C. Gaisbauer (2007) Time geography for ad-hoc shared-ride trip planning in mobile geosensor networks. *ISPRS Journal of Photogrammetry and Remote Sensing*. 62(5): 366-381.
2. M. Kritzler, **M. Raubal**, and A. Krüger (2007) A GIS framework for spatio-temporal analysis and visualization of laboratory mice tracking data. *Transactions in GIS*. 11(5): 765-782.
3. W. Kuhn, **M. Raubal**, and P. Gärdenfors (2007) Cognitive Semantics and Spatio-Temporal Ontologies (Editorial). *Spatial Cognition and Computation* 7(1): 3-12.
4. C. Rinner and **M. Raubal** (2004) Personalized Multi-Criteria Decision Strategies in Location-Based Decision Support. *Journal of Geographic Information Sciences* 10(2): 149-156.
5. **M. Raubal**, H. Miller, and S. Bridwell (2004) User-Centred Time Geography For Location-Based Services. *Geografiska Annaler B* 86(4): 245-265.
6. C. Nothegger, S. Winter, and **M. Raubal** (2004) Selection of Salient Features for Route Directions. *Spatial Cognition and Computation* 4(2): 113-136.
7. **M. Raubal** and W. Kuhn (2004) Ontology-Based Task Simulation. *Spatial Cognition and Computation* 4(1): 15-37.
8. **M. Raubal** (2001) Human wayfinding in unfamiliar buildings: a simulation with a cognizing agent. *Cognitive Processing* (2-3): 363-388.
9. A. Frank and **M. Raubal** (2001) GIS Education Today: From GI Science to GI Engineering. *Journal of the Urban and Regional Information Systems Association (URISA)* 13(2): 5-10.
10. **M. Raubal** (2001) Ontology and epistemology for agent-based wayfinding simulation. *International Journal of Geographical Information Science* 15(7): 653-665.
11. A. Frank and **M. Raubal** (1999) Formal Specifications of Image Schemata - A Step to Interoperability in Geographic Information Systems. *Spatial Cognition and Computation* 1(1): 67-101.
12. **M. Raubal** and M. Egenhofer (1998) Comparing the complexity of wayfinding tasks in built environments. *Environment & Planning B* 25(6): 895-913.
13. **M. Raubal**, B. Gaupmann, and W. Kuhn (1997) Teaching Raster GIS Operations with Spreadsheets. *Journal of Geography* 96(5): 258-263.

Articles in Refereed Conference Proceedings

1. J. Schöning, B. Hecht, **M. Raubal**, A. Krüger, M. Marsh, and M. Rohs (in press) Improving Interaction with Virtual Globes through Spatial Thinking: Helping Users Ask "Why?" in: IUI 2008 - International Conference on Intelligent User Interfaces, Canary Islands, Spain. ACM Press.
2. C. Keßler, **M. Raubal**, and K. Janowicz (2007) The Effect of Context on Semantic Similarity Measurement. in: R. Meersman, Z. Tari, and P. Herrero (Eds.), *On The Move - OTM 2007 Workshops, Part II - 3rd International IFIP Workshop On Semantic Web &*

- Web Semantics (SWWS '07), Vilamoura, Algarve, Portugal*. Lecture Notes in Computer Science 4806, pp. 1274-1284, Springer, Berlin.
3. M. Rohs, J. Schöning, **M. Raubal**, G. Essl, and A. Krüger (2007) Map Navigation with Mobile Devices: Virtual versus Physical Movement with and without Visual Context. in: *Proceedings of the Ninth International Conference on Multimodal Interfaces (ICMI 2007), 12-15 November 2007, Nagoya, Japan*. pp. 146-153, ACM Press.
 4. K. Janowicz and **M. Raubal** (2007) Affordance-Based Similarity Measurement for Entity Types. in: S. Winter, M. Duckham, L. Kulik, and B. Kuipers (Eds.), *Spatial Information Theory - 8th International Conference, COSIT 2007, Melbourne, Australia, September 2007*. Lecture Notes in Computer Science 4736, pp. 133-151, Springer, Berlin.
 5. B. Bäumer, I. Panov, and **M. Raubal** (2007) Decision Improvement through Multi-Criteria Strategies in Mobile Location-Based Services. in: A. Car, G. Griesebner, and J. Strobl (Eds.), *Geospatial Crossroads @ GI_Forum: Proceedings of the First Geoinformatics Forum Salzburg*. pp. 17-25, Wichmann, Heidelberg.
 6. A.-K. Lautenschütz, C. Davies, **M. Raubal**, A. Schwering, and E. Pederson (2007) The Influence of Scale, Context and Spatial Preposition in Linguistic Topology. in: T. Barkowsky, M. Knauff, G. Ligozat, and D. Montello (Eds.), *Spatial Cognition V - Reasoning, Action, Interaction. International Conference Spatial Cognition 2006, Bremen, Germany, September 24-28, 2006, Revised Selected Papers*. Lecture Notes in Artificial Intelligence 4387, pp. 439-452, Springer, Berlin.
 7. S. Winter and **M. Raubal** (2006) Time Geography for Ad-Hoc Shared-Ride Trip Planning. in: K. Aberer, T. Hara, and A. Joshi (Eds.), *7th International Conference on Mobile Data Management (MDM'06), Nara, Japan*. IEEE.
 8. M. Kritzler, L. Lewejohann, A. Krüger, **M. Raubal**, and N. Sachser (2006) An RFID-based Tracking System for Laboratory Mice in a Semi-Natural Environment. in: A. Schmidt, S. Spiekermann, A. Gershman, and F. Michahelles (Eds.), *PTA2006 Workshop, PERVASIVE - Pervasive Technology Applied Real-World Experiences with RFID and Sensor Networks, Dublin, Ireland*.
 9. A. Schwering and **M. Raubal** (2005) Measuring Semantic Similarity between Geospatial Conceptual Regions. in: A. Rodriguez, I. Cruz, M. Egenhofer, and S. Levashkin (Eds.), *GeoSpatial Semantics - First International Conference, GeoS 2005, Mexico City, Mexico, November 2005*. Lecture Notes in Computer Science 3799, pp. 90-106, Springer, Berlin.
 10. A. Schwering and **M. Raubal** (2005) Spatial Relations for Semantic Similarity Measurement. in: J. Akoka, S. Liddle, I.-Y. Song, M. Bertolotto, I. Comyn-Wattiau, W.-J. vanden Heuvel, M. Kolp, J. Trujillo, C. Kop, and H. Mayr (Eds.), *Perspectives in Conceptual Modeling: ER 2005 Workshops CAOIS, BP-UML, CoMoGIS, eCOMO, and QoIS, Klagenfurt, Austria, October 24-28, 2005*. Lecture Notes in Computer Science 3770, pp. 259-269, Springer, Berlin.
 11. C. Rinner, **M. Raubal**, and B. Spiegel (2005) User Interface Design for Location-Based Decision Services. in: *13th International Conference on GeoInformatics, 17-19 August 2005, Proceedings (CD-ROM)*, Toronto, Canada.
 12. T. Wilmes and **M. Raubal** (2005) Technische Nutzbarkeitsanalyse von Triggered Location Services. in: J. Strobl, T. Blaschke, and G. Griesebner (Eds.), *Angewandte Geoinformatik 2005 - Beiträge zum 17. AGIT-Symposium Salzburg*. pp. 780-789, Wichmann, Heidelberg.

13. C. Kessler, M. Wilde, and **M. Raubal** (2005) Using SDI-based Public Participation for Conflict Resolution. in: *11th EC-GI & GIS Workshop, ESDI: Setting the Framework*, Alghero, Sardinia, 29th June - 1st July 2005.
14. **M. Raubal** (2005) Mappings For Cognitive Semantic Interoperability. in: F. Toppen and M. Painho (Eds.), *AGILE 2005 - 8th Conference on Geographic Information Science*. pp. 291-296, Instituto Geografico Portugues (IGP), Lisboa, Portugal.
15. C. Kessler, C. Rinner, and **M. Raubal** (2005) An Argumentation Map Prototype to Support Decision-Making in Spatial Planning. in: F. Toppen and M. Painho (Eds.), *AGILE 2005 - 8th Conference on Geographic Information Science*. pp. 135-142, Instituto Geografico Portugues (IGP), Lisboa, Portugal.
16. **M. Raubal** (2004) Formalizing Conceptual Spaces. in: A. Varzi and L. Vieu (Eds.), *Formal Ontology in Information Systems, Proceedings of the Third International Conference (FOIS 2004)*. *Frontiers in Artificial Intelligence and Applications* 114, pp. 153-164, IOS Press, Amsterdam, NL.
17. **M. Raubal** and C. Rinner (2004) Multi-Criteria Decision Analysis for Location Based Services. in: S. A. Brandt (Ed.), *Geoinformatics 2004, 12th International Conference on Geoinformatics*, 7-9 June, 2004, Gävle, Sweden, pp. 47-53.
18. D. Redbrake and **M. Raubal** (2004) Ontology-Driven Wrappers for Navigation Services. in: F. Toppen and P. Prastacos (Eds.), *AGILE 2004, 7th Conference on Geographic Information Science*, April 29th - May 1st, Heraklion, Greece, pp. 195-205.
19. W. Kuhn and **M. Raubal** (2003) Implementing Semantic Reference Systems. in: M. Gould, R. Laurini, and S. Coulondre (Eds.), *AGILE 2003 - 6th AGILE Conference on Geographic Information Science*, Lyon, France, pp. 63-72.
20. **M. Raubal** and S. Winter (2002) Enriching Wayfinding Instructions with Local Landmarks. in: M. Egenhofer and D. Mark (Eds.), *Geographic Information Science - Second International Conference, GIScience 2002, Boulder, CO, USA, September 2002*. *Lecture Notes in Computer Science* 2478, pp. 243-259, Springer, Berlin.
21. H. Hochmair and **M. Raubal** (2002) Topologic and Metric Decision Criteria for Wayfinding in the Real World and the WWW. in: *Int. Symposium on Spatial Data Handling, SDH'02*, Ottawa, Canada.
22. A. Frank, S. Bittner, and **M. Raubal** (2001) Spatial and Cognitive Simulation with Multi-agent Systems. in: D. Montello (Ed.), *Spatial Information Theory - Foundations of Geographic Information Science, Proceedings of COSIT 2001*, Morro Bay, CA, USA, September 2001. *Lecture Notes in Computer Science* 2205, pp. 124-139, Springer, Berlin, Heidelberg, New York.
23. A. Frank and **M. Raubal** (2000) Formal Specifications of Image Schemata for Interoperability in Geographic Information Systems. *Spatial Cognition - Foundations and Applications (Selected Papers from Mind III, Annual Conference of the Cognitive Science Society of Ireland, 1998)*. S. Nuallain. Amsterdam/Philadelphia, John Benjamins B. V. 26: 213-232.
24. **M. Raubal** and M. Worboys (1999) A Formal Model of the Process of Wayfinding in Built Environments. in: C. Freksa and D. Mark (Eds.), *Spatial Information Theory - Cognitive and Computational Foundations of Geographic Information Science, International Conference COSIT '99*, Stade, Germany, pp. 381-399.

25. T. Jordan, **M. Raubal**, B. Gartrell, and M. Egenhofer (1998) An Affordance-Based Model of Place in GIS. in: T. Poiker and N. Chrisman (Eds.), *8th Int. Symposium on Spatial Data Handling, SDH'98*, Vancouver, Canada, pp. 98-109.
26. A. Frank and **M. Raubal** (1998) Specifications for Interoperability: Formalizing Image Schemata for Geographic Space. in: T. Poiker and N. Chrisman (Eds.), *8th Int. Symposium on Spatial Data Handling, SDH'98*, Vancouver, Canada, pp. 331-348.
27. **M. Raubal**, M. Egenhofer, D. Pfoser, and N. Tryfona (1997) Structuring Space with Image Schemata: Wayfinding in Airports as a Case Study. in: S. Hirtle and A. Frank (Eds.), *Spatial Information Theory—A Theoretical Basis for GIS, International Conference COSIT '97, Laurel Highlands, PA. Lecture Notes in Computer Science 1329*, pp. 85-102, Springer-Verlag, Berlin.
28. S. Timpf, **M. Raubal**, and W. Kuhn (1996) Experiences with Metadata. in: *7th Int. Symposium on Spatial Data Handling, SDH'96*, Delft, The Netherlands (August 12-16, 1996), pp. 12B.31 - 12B.43.

Reviewed Book Sections

1. **M. Raubal** (in press) Wayfinding: Affordances and Agent Simulation. in: S. Shekhar and H. Xiong (Eds.), *Encyclopedia of GIS*. Springer.
2. **M. Raubal** and R. Moratz (in press) A functional model for affordance-based agents. in: J. Hertzberg and E. Rome (Eds.), *Affordance-Based Robot Control. Lecture Notes in Artificial Intelligence*. Springer, Berlin.
3. P. Tomberge and **M. Raubal** (2006) Navigation mittels RFID - Untersuchung der Navigationsmöglichkeiten durch RFID-Eintrittskarten bei der Fussball-WM 2006. in: J. Strobl and C. Roth (Eds.), *GIS und Sicherheitsmanagement*. pp. 91-100, Wichmann, Heidelberg.
4. S. Winter, **M. Raubal**, and C. Nothegger (2005) Focalizing Measures of Saliency for Wayfinding. in: L. Meng, A. Zipf, and T. Reichenbacher (Eds.), *Map-based Mobile Services – Theories, Methods and Implementations*. pp. 127-142, Springer, Berlin.

Articles in Non-Refereed Journals

1. **M. Raubal** (2006) Location-Based Decision Services - eine neuartige Form mobiler räumlicher Entscheidungsunterstützung. *VGI - Vermessung & Geoinformation* 94(1+2): 30-37.
2. **M. Raubal** (2006) Menschlich denkende Navigationssysteme. *Conrad* (1/2006): 24-27.
3. S. Winter, E. Pontikakis, and **M. Raubal** (2001) LBS for Real-Time Navigation - A Scenario. *GeoInformatics*. 4: 6-9.
4. **M. Raubal** (1997) Geoinformation im Internet: Die Homepage der Abteilung Geoinformation an der TU Wien. *Zeitschrift fuer Vermessungswesen* 122(2): 86-90.

Abstracts in Refereed Conference Proceedings

1. U. Kies, T. Mrosek, **M. Raubal**, and A. Schultz (2006) Innovative knowledge management and decision-making support in forest and wood-based industries: Applying the cluster concept to forestry in Germany. in: *ForestXChange - International conference*

- on new approaches in knowledge management, October 25-27, 2006, Freiburg, Germany.*
2. G. Saio, E. Roccatagliata, **M. Raubal**, et al. (2001) PANEL-GI: Pan European link for Geographical Information: 'The PANEL-GI Compendium, A Guide to GI and GIS'. (Abstract) in: *7th EC-GI & GIS Workshop 'EGII - Managing the Mosaic', June 13-15, 2001, Potsdam, Germany*, European Commission.
 3. **M. Raubal** (2000) Human wayfinding in unfamiliar buildings: a simulation with cognizing agents. in: M. Belardinelli (Ed.), *International Conference on Spatial Cognition: Scientific Research and Applications (ICSC 2000), Cognitive Processing - special issue 2000, Rome, Italy*, pp. 66.
 4. **M. Raubal** and A. Frank (2000) Multimodal Communication for Wayfinding: Airports as a Case Study. (Abstract) in: *4th Swedish Symposium on Multimodal Communication (SSoMC), 26-27 October 2000, Stockholm, Sweden, Stockholm University / KTH*.
 5. **M. Raubal** (2000) Ontology and epistemology for agent-based wayfinding simulation. (Abstract) in: S. Winter (Ed.), *Geographical Domain and Geographical Information Systems - EuroConference on Ontology and Epistemology for Spatial Data Standards, 22-27 September 2000, La Londe-les-Maures, France*. GeoInfo Series 19, pp. 85-87, Institute for Geoinformation, TU Vienna, Austria.

Books

1. **M. Raubal**, H. Miller, A. Frank, and M. Goodchild, Eds. (2006) *Geographic Information Science - Fourth International Conference, GIScience 2006, Münster, Germany, September 2006*. Lecture Notes in Computer Science 4197. Springer, Berlin.
2. **M. Raubal**, H. Miller, A. Frank, and M. Goodchild, Eds. (2006) *Geographic Information Science - Fourth International Conference, GIScience 2006, Münster, Germany, September 2006, Extended Abstracts*. IfGI prints 28. Verlag Natur & Wissenschaft, Solingen, Germany.
3. **M. Raubal** (2005) *Cognitive Engineering for Geoinformatics*. Verlag Natur & Wissenschaft, Solingen, Germany.
4. **M. Raubal**, A. Sliwinski, and W. Kuhn, Eds. (2004) *Geoinformation und Mobilität - Von der Forschung zur praktischen Anwendung*. Beiträge zu den Münsteraner GI-Tagen 01./02. Juli 2004, Münster 2004. IfGIprints 22. Verlag Natur & Wissenschaft, Solingen, Germany.
5. **M. Raubal** (2002) *Wayfinding in Built Environments: The Case of Airports*. Verlag Natur & Wissenschaft, Solingen, Germany.
6. A. Frank, **M. Raubal**, and M. van der Vlugt, Eds. (2000) *PANEL-GI Compendium – A Guide to GI and GIS*. Genova, Italy. Geographical Information Systems International Group (GISIG) & European Commission.
7. A. Frank, **M. Raubal**, and M. van der Vlugt, Eds. (1999) *Multi-Agency Databases to Manage Geographic Information*. GeoInfo Series 16. Department of Geoinformation, Technical University Vienna, Vienna.

Special issues edited

1. W. Kuhn, **M. Raubal**, and P. Gärdenfors (2007) Cognitive Semantics and Spatio-Temporal Ontologies. *Spatial Cognition and Computation*. 7(1).

Theses

1. **M. Raubal** (2001) Agent-based Simulation of Human Wayfinding: A Perceptual Model for Unfamiliar Buildings. Ph.D. Thesis, Vienna University of Technology, Vienna.
2. **M. Raubal** (1997) *Structuring Wayfinding Tasks with Image Schemata*. Master Thesis, Department of Spatial Information Science and Engineering, University of Maine, U.S.A.

Presentations

1. **M. Raubal** (2007) Cognitive aspects in GIScience. Interdisciplinary Cognitive Science Seminar. Department of Psychology, University of California at Santa Barbara.
2. **M. Raubal** (2007). Auf dem Weg zur Voll-Professur: Ein gewagter Sprung über den Atlantik? 4th Junior Professor Symposium. University of Bremen, Germany.
3. **M. Raubal** (2007). Representing concepts in time. SFB/TR 8 Spatial Cognition / IQN Colloquium. Cognitive Systems, University of Bremen, Germany.
4. **M. Raubal** (2007) Personalization of Geographic Information. Geography Colloquium. Department of Geography, State University of San Diego, CA, U.S.A.
5. **M. Raubal** (2007) Representing geographic concepts in time. AAG Annual Meeting. San Francisco, CA, U.S.A.
6. **M. Raubal** (2007) Simulating ad-hoc shared-ride trip planning in mobile geosensor networks. Geography Colloquium. Department of Geography, University of California at Santa Barbara.
7. **M. Raubal** (2006) Was ist Geoinformatik? Forschungsgebiete, Studieninhalte und Berufsfelder. Hochschultag 2006. Universität Münster, Germany.
8. **M. Raubal** (2006) Personalization of Geographic Information. Department of Geography, Ryerson University, Toronto, Canada.
9. **M. Raubal** (2006) Cogito ergo mobilis sum: Der kognitive Mensch in Raum und Zeit. Antrittsvorlesung. University of Muenster, Germany.
10. **M. Raubal** (2006) Agent-Based Simulation of Human Wayfinding: A Perceptual Model for Unfamiliar Buildings. Dagstuhl Seminar on Affordance-Based Robot Control. Dagstuhl Castle, Germany.
11. **M. Raubal** (2006) Effiziente Planung von kurzfristigen Mitfahrgelegenheiten. Habilitationsvortrag. Fachbereich Geowissenschaften, Universität Münster, Germany.
12. **M. Raubal** (2006) Time Geography for Ad-Hoc Shared-Ride Trip Planning. 7th International Conference on Mobile Data Management (MDM'06). Nara, Japan.
13. **M. Raubal** (2006) Location-Based Decision Services - eine neuartige Form mobiler räumlicher Entscheidungsunterstützung. 9. Österreichischer Geodätentag. Krems, Austria.
14. **M. Raubal** (2006) Personalization of Geographic Information. Colloquium Series. Department of Geography, University of California Santa Barbara.
15. **M. Raubal** (2006) Cartographic design - instruction & research directions. Cartographic design class. Department of Geography, University of California Santa Barbara.
16. **M. Raubal** (2005) Mappings for Cognitive Semantic Interoperability. Dagstuhl Seminar on Spatial Cognition: Specialization and Integration. Dagstuhl Castle, Germany.
17. **M. Raubal** and P. Agarwal (2005) Cognitive Engineering for Geospatial Services. COSIT Workshop on "Cognitive Engineering for Geospatial Services". Ellicottville, N.Y., U.S.A.
18. **M. Raubal** (2005) Mappings for Cognitive Semantic Interoperability. Department of Geography, Penn State University, U.S.A.

19. **M. Raubal** (2005) Zeitgeographie als theoretische Grundlage für Location-Based Services. Kolloquium aus Geographie und Regionalforschung. Institut für Geographie, Universität Klagenfurt, Klagenfurt, Austria.
20. **M. Raubal** (2005) Mappings for Cognitive Semantic Interoperability. 8th AGILE conference. Estoril, Portugal.
21. **M. Wilde** and **M. Raubal** (2004) MEDIS Atlas and Metadata Server – Current State. MEDIS Project meeting. Mondello, Sicily.
22. **M. Raubal** (2004) Personalisierung von geographischer Information. Einführungsvortrag zum Habilitationsverfahren. Institut für Geoinformatik, Münster, Germany.
23. **M. Raubal** (2004) Formalizing Conceptual Spaces. Conference on Formal Ontology in Information Systems, FOIS 2004. Torino, Italy.
24. **M. Raubal** (2004) Multi-Criteria Decision Analysis for Location Based Services. Geoinformatics 2004, 12th International Conference on Geoinformatics. Gävle, Sweden.
25. **M. Raubal** (2004) Cognitive Engineering. Euresco on methods to support interaction in geovisualisation environments. Kolymbari, Crete, Greece.
26. **M. Raubal** and **M. Lutz** (2004) Modeling and Managing the Semantics of Geospatial Data and Services. NCGIA Specialist Meeting on Spatial Webs. Santa Barbara, CA, U.S.A.
27. **M. Raubal** (2003) Cognitive Engineering für Geoinformatik. Vortrag im Rahmen der Besetzung einer Juniorprofessur. Institut für Geoinformatik, Universität Münster.
28. **M. Raubal** (2003) Interoperabilität und semantische Referenzsysteme für GIS. Kolloquium aus Geographie und Regionalforschung. Institut für Geographie, Universität Klagenfurt, Klagenfurt, Austria.
29. **M. Raubal** (2003) Agent-Based Simulation of Human Wayfinding: A Perceptual Model for Unfamiliar Buildings. Euresco on Modeling for Wayfinding Services. Bad Herrenalb, Germany.
30. **M. Raubal** (2002) Decision criteria for wayfinding in the real world and the World Wide Web. Department of Geography, University of Utah. Salt Lake City, U.S.A.
31. **M. Raubal** (2002) Agent-based simulation of human wayfinding: A perceptual model for unfamiliar buildings. Department of Geography, University of Utah. Salt Lake City, U.S.A.
32. **M. Raubal** (2002) Enriching Wayfinding Instructions with Local Landmarks. GIScience 2002. Boulder, CO, U.S.A.
33. **M. Raubal** (2001) Orientierungs-Los in Wien!? Wie man in Gebäuden seinen Weg findet, am Beispiel des Flughafens Wien. University Meets Public (UMP). VHS Simmering.
34. **M. Raubal** (2001) Integration of information during wayfinding in an unfamiliar building. Data Fusion and Separation Meeting. Carnuntum, Austria.
35. **M. Raubal** (2001) Human Wayfinding in Unfamiliar Buildings: A Simulation with a Cognizing Agent. Kolloquium Geographische Informationswissenschaft. Geographisches Institut, Universität Zuerich, Switzerland.
36. **M. Raubal** (2000) Human wayfinding in unfamiliar buildings: a simulation with cognizing agents. International Conference on Spatial Cognition: Scientific Research and Applications (ICSC 2000). Rome, Italy.
37. **M. Raubal** (2000) Multimodal Communication for Wayfinding: Airports as a Case Study. 4th Swedish Symposium on Multimodal Communication (SSoMC). Stockholm, Sweden.
38. **M. Raubal** (2000) Ontology and epistemology for agent-based wayfinding simulation. EuroConference on Ontology and Epistemology for Spatial Data Standards. La Londe-les-Maures, France.

39. **M. Raubal** (2000) The PANEL-GI Compendium - A Guide to GI and GIS. EUGISES 2000. Budapest, Hungary.
40. **M. Raubal** (2000) Agent-Based Simulation of Human Wayfinding in Buildings. MIT AI Lab, Boston, MA, U.S.A.
41. **M. Raubal** (2000) Research Challenges for Real-Time Navigation Services. GeoPo'2000. Podersdorf, Austria.
42. **M. Raubal** (2000) The PANEL-GI Compendium - A Guide to GI and GIS. International workshop "Geographical Information Infrastructures 2000". Sofia, Bulgaria.
43. **M. Raubal** (2000) Strukturieren von Wegesucheaufgaben mit Hilfe von Image Schemata. FIKUS (Forschungsinstitut Kultur- und Sozialwissenschaften). Vienna, Austria.
44. **M. Raubal** (2000) Specifying a Cognizing Wayfinding Agent. GeoSki. Bad Kleinkirchheim, Austria.
45. **M. Raubal** (1999) Agent-Based Simulation of People's Wayfinding Behavior in Buildings. COSIT '99 - Doctoral Colloquium. Stade, Germany.
46. **M. Raubal** (1999) A Formal Model of the Process of Wayfinding in Built Environments. COSIT '99. Stade, Germany.
47. **M. Raubal** (1999) A Formal Model of the Process of Wayfinding in Built Environments. IFGI Summer Retreat. Nordkirchen, Germany.
48. **M. Raubal** (1999) People's Wayfinding Behavior in the Built Environment. European Research Conference "Socio-Economic Research & Geographic Information Systems". Espinho, Portugal.
49. **M. Raubal** (1998) Specifications for Interoperability: Formalizing Image Schemata for Geographic Space. SDH'98. Vancouver, Canada.
50. **M. Raubal** (1998) Structuring Wayfinding Tasks with Image Schemata. University of Hamburg. Hamburg, Germany.
51. **M. Raubal** (1998) Structuring Wayfinding Tasks with Image Schemata. University of Muenster. Muenster, Germany.
52. **M. Raubal** (1997) Structuring Space with Image Schemata: Wayfinding in Airports as a Case Study. International Conference COSIT'97. Pittsburgh, USA.