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SUMMARY

I am interested in design and evaluation of innovative, interactive and intelligent systems. My research draws on and contributes to human-computer interaction, intelligent systems, computer-supported collaborative work, design science, and computational creativity. Some highlights of my recent research are models of surprise as a basis for innovation analytics, gesture and tangible interaction design, crowdsourcing design process models, and design patterns for active learning in CS education.

EMPLOYMENT

PROFESSOR AND CHAIR, SOFTWARE AND INFORMATION SYSTEMS

University of North Carolina Charlotte: 2012-present. The Software and Information Systems Department is a pioneer in Information Technology research and education emphasizing on designing and deploying integrated, secure, reliable, and human-centered IT solutions. I am the Director of the Center for Education Innovation, a core faculty in the InDe Lab, and lead research teams on learning analytics, computational creativity, tangible computing, and crowdsourcing design.

SENIOR RESEARCH SCIENTIST, COLLEGE OF INFORMATION STUDIES

University of Maryland, 2010-2012: Senior Research Scientist at the University of Maryland doing research in the Human Computer Interaction Lab. This is a multidisciplinary group of faculty from Computer Science, Information Studies, Engineering, and Humanities disciplines.

PROGRAM DIRECTOR, COMPUTER & INFORMATION SCIENCE & ENGINEERING

National Science Foundation, 2006-2010: I established a program called CreativeIT by organising workshops, funding exploratory research and developing a solicitation for funding in 2008-2010. I was part of the Human Centered Computing cluster focussing on research in HCI techniques, social computing, computer-supported collaborative work, virtual worlds, and multi-agent systems. I was co-chair of the Cyber-Enabled Discovery and Innovation Program in 2009, participated in the development of the Social Computational Systems solicitation, participated in the Science of Design program and its evolution into the Rethinking Software program area, assisted in the development of the Virtual Organizations as Socio-technical Systems solicitation, served as a technical coordinator for the Spatial Information Science of Learning Center, and participated in the development of an action plan for Broadening Participation in CISE. As a member of the Senior Executive Service in 2009 I was the Deputy Director of the Division of Information and Intelligent Systems and served on the SWAT Team for improving the hiring processes in the Federal Government to make the government an employer of choice.

PROFESSOR OF DESIGN COMPUTING, jointly in ARCHITECTURE and COMPUTER SCIENCE

University of Sydney, 1990-2011, currently Honorary Professor: promoted to a personal chair as Professor of Design Computing in 1997. Highlights are: Developed a new interdisciplinary

undergraduate degree Bachelor of Design Computing and served as Program Coordinator for 5 years; Program coordinator for Graduate Program in Design Computing for 10 years; Chair of Department of Architectural and Design Science for 2 years while the School was restructuring, Joint appointment with School of Information Technologies for 3 years; Research provider for Collaborative Research Centre for Construction Innovation and for National ICT Australia, Co-Director of the Key Centre of Design Computing for 15 years.

VISITING PROFESSOR IN DESIGN AND COMPUTATION

Massachusetts Institute of Technology, 2002: teaching and research in the Design and Computation Group in the School of Architecture on designing virtual worlds; collaborating with Active Worlds Inc. to develop agent models using their platform.

ADJUNCT PROFESSOR IN SOCIAL POLICY

Columbia University, 2002: teaching in School of International and Public Affairs on computer-mediated communication in virtual worlds.

ASSOCIATE PROFESSOR, ASSISTANT PROFESSOR IN CIVIL ENGINEERING

Carnegie Mellon University, 1984-1989: teaching and research in computer-aided engineering in Civil Engineering.

EDUCATION

PhD Carnegie Mellon University, Civil Engineering Department, 1984. PhD thesis on artificial intelligence in design focussing on the synthesis of alternative design concepts for high rise buildings.

MS Carnegie Mellon University, Civil Engineering Department, 1981. Masters thesis on an intelligent tutoring system for teaching principles of structural design.

BS Columbia University, Civil Engineering Department, 1979.

TEACHING

My teaching has ranged from lecture based teaching in engineering to teaching computing subjects in a studio environment for design computing, engineering and computer science students. In my teaching I use flipped classroom methods and open-ended project-based learning to encourage students to be creative and to develop their knowledge and skills by actively engaging in the concepts through making and problem solving. My teaching encourages independent thinking and collaboration. Listed here are descriptions of the most recent subjects I have taught at the University of North Carolina Charlotte and a list of other subjects taught in the past 10 years.

Human Computer Interaction, UNCC

This course is a foundational course in design methods and techniques for human-computer interaction. A major focus of the course is the processes of need finding, early prototyping of interface designs, evaluating and improving a design. Students gain practical design and evaluation skills through a semester long project and in-class group activities that apply various need finding, design, and evaluation methods to specific interaction design contexts. Students learn about current research topics in HCI, human ethics in HCI research, and experiment design in HCI research. This course was redeveloped using the flipped classroom method in Fall 2014.

Web-Based Application Development, UNCC

This course covers basic concepts for developing interactive web based applications; including HTML, client side scripting, server side scripting, user interface design considerations, and system integration considerations. Students will learn html, css, javascript, jquery, and be

introduced to php. Students will gain experience in designing and implementing working prototypes of web pages, web sites, and interactive dynamic web-based applications. This course was redeveloped using the flipped classroom method in Spring 2013.

Interaction Design Studio, UNCC

This course provides an in depth design experience with a specific stakeholder and a focus on innovative solutions. Examples of topics and stakeholders include: tangible designs for creative thinking, smart appliance design for Electrolux, engaging elderly communities in creative activity, designing interactive sustainable buildings, interaction design for 3D printed prostheses.

Solving Problems in Information Management, Fall 2011, Spring 2012, UMD

Information Management Team Experience, Fall 2011, Spring 2012, UMD

Digital Design Studio. USYD

Collaborative Virtual Environments. USYD

Research Methods in Information Technology. USYD

Digital Image Design and Representation, USYD

Web Design Information Systems, USYD

Design Computing Studio, USYD

Computer Supported Collaborative Design, USYD

Agents in Design: Agent-Based Virtual Worlds, USYD

Designing Virtual Worlds, USYD

RESEARCH

My research focus is human centered and AI models of design and creativity. More recently I have become interested in CS education research with a focus on design patterns for and the impact of active and team based learning on performance and perception of learning computational concepts to cognitive models of designers. The following research areas reflect my research by providing a description of my research focus, relevant recent publications, and recent grants. A complete list of over 200 publications including books, journal articles, and refereed conference papers, is available on <http://www.maryloumaher.net>

AWARDS and INVITATIONS

Sanders Series Speaker at Toronto User Experience Group (TUX). February 2018. "Designing for Gesture and Tangible Interaction.

Tee Sasada Award, Presented at CAADRIA 2014.

Best Paper Award, 2014 International Conference Design Computing and Cognition: Grace, K., Maher, M. L., Fisher, D. & Brady, K. (2014). Modelling expectation for evaluating surprise in design creativity. In Gero, J.S. and Hanna, S (eds) Proceedings of Design Computing and Cognition 2014, University College London.

Keynote Speaker at European Conference of Technology Enhanced Learning (EC-TEL 2012), September 2012, www.ec-tel.eu

Invited Speaker at the Distinguished Lecture Series, Computer Engineering Department at ITAM, April 2012, <http://ingcomputacion.itam.mx/>

Keynote Speaker at 6th International ASCAAD Conference February 2012: <http://www.ascaad.org/conference/2012/index.htm>

Invited Speaker at ISPE Concurrent Engineering 2011: <http://www.ce2011.org/>

Invited Panelist at the International Conference on Design Creativity: <http://www.org.kobe-u.ac.jp/icdc2010/>

Invited Speaker in 2010 at the 1st International Conference on Computational Creativity: <http://creative-systems.dei.uc.pt/icccx/>

Keynote Speaker at Collaborative Technologies 2009: <http://www.collabtech.org/>

Keynote Speaker at the 2009 College of Information Science and Technology Graduate Symposium at Penn State University
<http://gradsymp.ist.psu.edu/2009/speakers>

Keynote Speaker at the 2nd International Workshop on Social Computing, Behavior Modeling, and Prediction 2009
<http://www.public.asu.edu/%7Ehuanliu/sbp09/index.html>

9th International Conference on Construction Applications of Virtual Reality 2009
<http://www.convr2009.com/>

Director's Award in 2008 at the National Science Foundation for novel approaches to panel review of potential transformative research

Senior Executive Service in 2008 at the National Science Foundation

Keynote Speaker Design Computing and Cognition 2008
<http://mason.gmu.edu/~jgero/conferences/dcc08/>

Keynote Speaker at International Visual Literacy Association 2008
www.ivla.org/pdf_files/IVLA_Final_Program_really.pdf

Keynote Speaker at Australian and New Zealand Architectural Science Association 2008
http://www.newcastle.edu.au/conference/anzasca2008/keynote_speakers.html

SERVICE

I have served on review panels for the National Science Foundation and the European Commission, reviewed grant proposals for the Australian Research Council and the Research Council for Natural Sciences and Engineering of the Academy of Finland. I reviewed proposals and made recommendations for funding as a member of the Research Committee for the Collaborative Research Centre for Construction Innovation in Australia. While in the US I was an active member of the Society of Women Engineers and since moving back to the US I have participated in a workshop for high school girls as part of the Women in Technology program. I was on the Committee for broadening participation of under-represented groups in CISE at NSF.

On the Editorial Board and/or review papers for the following journals:

Automation in Construction

AI EDAM

Computers in Industry

CoDesign

Design Studies
International Journal of Design Creativity and Innovation
International Journal of Human Computer Studies
International Journal of Architectural Computing
Journal of Computer Information and Science in Engineering
Journal of Engineering Design
Knowledge Based Systems
Research in Engineering Design

Program Committee for the following conference series:
ICCC (Int'l Conference on Computational Creativity) 2012 and 2013, Program Chair
Aml (Ambient Intelligence) 2011: Program Co-Chair (with David Keyson)
ACADIA: Association for Computer Aided Design in Architecture
CAADRIA: Computer Aided Architectural Design and Research in Asia Computer Supported
CAADFutures
Computer supported Collaborative Work
Collaborative Design, Visualization and Engineering
Computer Supported Collaborative Design
Computer Aided Innovation
Creativity and Cognition
Design Computing and Cognition
SIGCHI: ACM Special Interest Group on Computer Human Interaction
International Conference on Intelligent Environments
International Conference on Computational Creativity
International Conference on Design Creativity
International Conference on Engineering Design
International Conference on Creativity and Cognition
IVA, International Conference on Intelligent Virtual Agents
SIGraDi: Iberoamerican Society of Digital Graphics

Publications (2005-2018)

I have an h-index of 44 using the results from Google Scholar. My most highly cited book is Case-Based Reasoning in Design, published in 1997, my most highly cited magazine article is Process Models for Design Synthesis in AI Magazine in 1990, my most highly cited journal article is Modeling Design Exploration as Co-evolution in 1996. My most recent books are Designing for Gesture and Tangible Interaction in 2017, Design Grammars for Designing Adaptive Virtual Worlds in 2014, and Motivated Reinforcement Learning: Curious Characters for Multiuser Games published in 2009. Below is a list of my most recent publications. A complete list is available on maryloumaher.net.

2018

- Karimi, P., Grace, K., Maher, M.L., Davis, N. (2018). Evaluating Creativity in Computational Co-Creative Systems, *International Conference on Computational Creativity*.
- Grace, K., Maher, M.L., Davis, N., Eltayeb, O. (2018). SurpriseWalks: Encouraging Users Towards Novel Concepts With Sequential Suggestions, *International Conference on Computational Creativity*.
- Karimi, P., Grace, K., Davis, N., Maher, M.L. (2018). Creative Sketching Apprentice: Supporting Conceptual Shifts in Sketch Ideation, *International Conference on Design Computing and Cognition*.
- MacNeil, S., Abdellahi, S., Maher, M.L., Kim, J. G., Mahzoon, M. and Grace, K. (2018). Designing with and for the Crowd: A Cognitive Study of Design Processes in NatureNet, *International Conference on Design Computing and Cognition*.
- Kim, J. G., Maher, M.L., Lee, L. (2018). The effect of tangible interaction on spatial design tasks. *International Conference on Design Computing and Cognition*.
- Niu, X. Abbas, F., Maher, M.L. and Grace, K. (2018). Surprise Me if You Can: Serendipity in Health Information, *ACM CHI Conference on Human Factors in Computing Systems*, 2018.
- Mahzoon, M.J., Maher, M.L., Eltayeb, O., Dou, W., and Grace, K. (2018). A Framework for Interactive Exploratory Learning Analytics,

Mahzoon, M.J., Maher, M.L., Etayeb, O., Dou, W., and Grace, K. (2018). A Sequence Data Model for Analyzing Temporal Patterns of Student Data, *Journal of Learning Analytics*, 5(10):55-74. tinyurl.com/y8l7fr2j

2017

Maher, M.L. and Lee, L. (2017) *Designing for Gesture and Tangible Interaction*, Synthesis Lectures on Human Centered Informatics, Morgan-Claypool.

Grace, K., Grace, S., Maher, M.L., Locurto, L., Outcault, B. (2017) The Willful Marionette: Exploring Responses to Embodied Interaction, In *Proceedings of Creativity and Cognition 2017*

Maher, M.L. and Grace, K. (2017) Encouraging Curiosity in Case-Based Reasoning and Recommender Systems, In *Proceedings of International Conference on Case-Based Reasoning*, Springer.

Grace, K., Maher, M.L., Mohseni, M., P'erez y P'erez, R. (2017) Encouraging p-creative behaviour with computational curiosity, In *Proceedings of International Conference on Computational Creativity*.

2016

Grace, K., Maher, M.L. (2016) Surprise-triggered Reformulation of Design Goals, *Proceedings of AAAI*.

Singh, V., Abdellahi, S., Maher, M.L., Latulipe, C., (2016). The Video Collaboratory as a Learning Environment, *Proceedings of the 47th ACM Technical Symposium on Computer Science Education*.

Maher, M.L., Gero, J.S., Lee, L., Yu, R., Clausner, T. (2016) Measuring the Effect of Tangible Interaction on Design Cognition, *Proceedings of HCI International*.

Mahzoon, M.J., Maher, M.L. Grace, K., LoCurto, L., Outcault, B. (2016) The Willful Marionette: Modeling Social Cognition Using Gesture-Gesture Interaction Dialogue, *Proceedings of HCI International*.

Maher, M.L., Lee, L., Gero, J.S., Yu, R., Clausner, T. (2016) Characterizing tangible interaction during a creative combination task, *Proceedings of Design Computing and Cognition*.

Grace, K., Maher, M.L., Wilson, D., Najjar, N. (2016) Personalised Specific Curiosity for Computational Design Systems, *Proceedings of Design Computing and Cognition*.

Preece, J., Boston, C., Yeh, T., Cameron, J., Maher, M., and Grace, K. Enticing casual nature preserve visitors into citizen science via photos. Extended abstract and poster presented at the Conference on Computer-Supported Cooperative Work and Social Computing, San Francisco, February 29, 2016.

Preece, J., Boston, C., Maher, M., Grace, K., and Yeh, T. From crowdsourcing design to participatory design and back again! *Proceedings of the European Conference on Social Media*, Caen, France, July 12-13, 2016.

Maher, M.L., Cukic, B., Mays, L., Rogelberg, S., Latulipe, C., Payton, J., Rorrer, A., Frevert, T. (2016) The Connected Learner: Engaging Faculty to Connect Computing Students to Peers, Profession and Purpose, *International Conference on Frontiers in Education*, Erie PA. Oct 13-15, 2016.

Grace, K., Maher, M.L., Wilson, D.C., and Najjar, N.A. (2016) Combining CBR and Deep Learning to Generate Surprising Recipe Designs, *International Conference on Case-Based Reasoning*, Springer International Publishing, pp 154-169.

2015

Grace, K., Maher, M.L., Fisher, D and Brady, K: (2015) A data-intensive approach to predicting creative designs based on novelty, value and surprise, *International Journal of Design, Creativity and Innovation* 3(3-4):125-147.

Maher, M.L., Latulipe, C., Lipford, H. and Rorrer, A. (2015). Flipped Classroom Strategies for CS Education, *Proceedings of the 46th ACM Technical Symposium on Computer Science Education*. pp. 218-223. Doi:10.1145/2676723.2677252

Grace, K. and Maher, M.L. (2015). Specific Curiosity as a Cause and Consequence of Transformational Creativity, *Proceedings of the Sixth International Conference on Computational Creativity*, Park City Utah, pp. 260-267. http://computationalcreativity.net/iccc2015/proceedings/ICCC2015_proceedings.pdf

Grace, K. and Maher, M.L. (2015). Surprise and Reformulation as Meta-cognitive Processes in Creative Design, *Proceedings of the Third Annual Conference on Advances in Cognitive Systems*, Atlanta Georgia, pp. 1-16.

Maher, M.L., Merrick, K., Wang, B. (2015). Reasoning and Making Sense of Data in the Absence of Goals, *Third Annual Conference on Advances in Cognitive Systems*, Workshop on Goal Reasoning.

Maher, M.L. and Mahzoon, M.J. (2015). Finding Unexpected Patterns in Citizen Science Contributions Using Innovation Analytics, *Conference on Collective Intelligence*. <https://sites.lsa.umich.edu/collectiveintelligence/>

2014

Grace, K and Maher, M.L: (2014) What to expect when you're expecting: the role of unexpectedness in computationally evaluating creativity, *Proceedings of the Fifth International Conference on Computational Creativity*.

Lina Lee, Yousra Javed, Steven Danilowicz, and Mary Lou Maher (2014). Information at the Wave of Your Hand, *Proceedings of HCI*

Korea, HCIK'15, Hanbit Media Inc. South Korea, pp 63-70.

<http://dl.acm.org/citation.cfm?id=2729496&dl=ACM&coll=DL&CFID=493559127&CFTOKEN=10152491>

Gu, N. and Maher, M.L. (2014). *Designing Adaptive Virtual Worlds*, De Gruyter Open. <http://www.degruyter.com/view/product/430436>

Paulini, M., Maher, M.L. and Murty, P. (2014) Motivating participation in online innovation communities, *International Journal of Web-Based Communities*, 10(1):94-114.

Maher, M.L., Preece, J., Yeh, T., Boston, C., Grace, K., Pasupuleti, A., Stangl, A. (2014) NatureNet: A Model for Crowdsourcing the Design of Citizen Science Systems, Poster Abstract in Proceedings of CSCW 2014, pp201-204.

Grace, K., Maher, M. L., Preece, J., Yeh, T., Stangl, A., & Boston, C. (2014). A process model for crowd-sourcing design: A case study in citizen science. In Gero, J.S. and Hanna, S (eds) Proceedings of *Design Computing and Cognition 2014*, University College London, pp 263--282.

Maher, M. L., Gonzalez, A. Grace, K., Clausner, T. (2014). Tangible Interaction Design: Can we design tangibles to enhance creative cognition?. In Gero, J.S. and Hanna, S (eds) Poster Proceedings of *Design Computing and Cognition 2014*, University College London.

Grace, K., Maher, M. L., Fisher, D. & Brady, K. (2014). Modelling expectation for evaluating surprise in design creativity. In Gero, J.S. and Hanna, S (eds) Proceedings of *Design Computing and Cognition 2014*, University College London, pp 201-220.

Preece, J., Grace, K., Boston, C., Maher, M. L., Yeh, T. and Stangl, A. (2014) Crowdsourcing design and citizen science data using a tabletop in a nature preserve, *European Conference on Social Media*, University of Brighton, UK, pp 413-420.

Grace, K. and Maher, M.L. (2014). Using Computational Creativity to Guide Data-intensive Scientific Discovery, in *AAAI Workshop on Discovery Analytics*.

2013

Maher, M.L., Brady, K. and Fisher, D. (2013). Computational Models of Surprise in Evaluating Creative Design In *Proceedings of The Fourth International Conference on Computational Creativity*, University of Sydney, pp 147-151.

Lee, J.H., Kim, M.J., and Maher, M.L. (2013). Designing for Interactive and Collective Mobile Creativity In Proceedings of the 9th ACM Conference on Creativity and Cognition, ACM: New York, NY, pp 345-348. doi:10.1145/2466627.2466667

Singh, N., Tomitsch, M. and Maher, M.L. (2013). Understanding the Management and Need For Awareness of Temporal Information in Email, AUIC: Australasian User Interface Conference. <http://www.cs.auckland.ac.nz/~burkhard/AUIC2013/>

Paulini, M., Murty, P. and Maher, M.L. (2013). Design processes in collective innovation communities: a study of communication, in *CoDesign: International Journal of CoCreation in Design and the Arts*, 9(1):90-212.

2012

Kim, M.J., Maher, M.L. and Gu, N. (2012). Mobile and Pervasive Computing: The Future of Design Collaboration, In Chimay Anumba and Xiangyu Wang (ed.) *Mobile and Pervasive Computing in Construction*, John Wiley & Sons, Ltd. Pp 169-188.

Maher, M.L. (2012). Computational and Collective Creativity: Who's Being Creative?, In *Proceedings of The Third International Conference on Computational Creativity*, University College Dublin, pp 67-71.

Maher, M.L. and Fisher, D.H. (2012). Using AI to Evaluate Creative Designs, In *Proceedings of International Conference on Creative Design*, pp 45-54.

Maher, M.L. and Fisher, D.H. (2012). The Role of AI in Wisdom of the Crowds for the Social Construction of Knowledge on Sustainability, *AAAI Spring Symposium 2012 Wisdom of the Crowd*.

Maher, M.L., Paulini, M. and Murty, P. (2012). Motivating Collective Intelligence in Design: Is Social Intelligence Relevant? Working paper.

Macindoe, O., Maher, M.L., and Merrick, K. (2012). Agent Based Intrinsically Motivated Intelligent Environments, *Mobile and Ubiquitous Computing: Status and Perspective*, CRC Press Taylors & Francis Group, Auerbach.

Maher, M.L., Hammond, K., Pease, A., Pérez y Pérez, R., Ventura, D. and Wiggins, G. (2012). (Eds). *Proceedings of The Third International Conference on Computational Creativity*, University College Dublin.

2011

Keyson, D.; Maher, M.L.; Streitz, N.; Cheok, A.D.; Augusto, J.C.; Wichert, R.; Englebienne, G.; Aghajan, H.; Kröse, B. (Eds.) (2011). *Second International Joint Conference, Aml 2011*, Amsterdam, The Netherlands, Lecture Notes in Computer Science, Vol. 7040.

Visser, W. and Maher, M.L. (2011). Guest Editorial: The role of gesture in designing, in *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, 25(3):221-235.

Visser, W. and Maher, M.L. (2011). Guest Editor of Special Issue: The role of gesture in designing, in *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, 25(3).

Gu, N., Kim, M.J. and Maher, M.L. (2011). Technological advancements in synchronous collaboration: The effect of 3D virtual worlds and tangible user interfaces on architectural design, *Automation in Construction*, 20:270-278.

Maher, M.L. and Gero, J.S. (2011). Leadership in Design Science, In William Sims Bainbridge (Ed) *Leadership in Science and*

Technology: A Reference Handbook, Sage.

- Fisher, D.H. and Maher, M.L. (2011). Towards Grammars for Cradle-to-Cradle Design, *AAAI Spring Symposia Series: Artificial Intelligence and Sustainable Design*, AAAI Press.
- Maher, M.L., Merrick, K. and Graham, B. (2011). Reasoning in the Absence of Goals, *AAAI Fall Symposia Series: Advances in Cognitive Systems*, AAAI Press.
- Fisher, D.H. and Maher, M.L. (2011). Free Play in Contemplative Ambient Intelligence, In Keyson, D.; Maher, M.L.; Streitz, N.; Cheok, A.D.; Augusto, J.C.; Wichert, R.; Englebienne, G.; Aghajan, H.; Kröse, B. (Eds.) *Second International Joint Conference, Aml 2011*, Amsterdam, The Netherlands, Springer Lecture Notes in Computer Science, Vol. 7040.
- Paulini, M., Maher, M.L., and Murty, P. (2011). The Role of Collective Intelligence in Design: A protocol study of online design communication, in C. M. Herr, N. Gu, S. Roudavsky, M. A. Schnabel (eds.), *Circuit Bending, Breaking and Mending: Proceedings of the 16th International Conference on Computer-Aided Architectural Design Research in Asia CAADRIA 2011*.

2010

- Maher, M.L. (2010). Designers and Collaborative Virtual Environments, In Xinagyu Wang and Jerry Tsai (Eds) *Collaborative Design in Virtual Environments*, Springer.
- Maher, M.L., Paulini, M. and Murty, P. (2010). 'Scaling up: From individual design to collaborative design to collective design', In John S Gero (Ed) *Design Computing and Cognition DCC'10*, Springer, pp. 581-600.
- Murty, P., Paulini, M. and Maher, M.L. (2010). Collective Intelligence and Design Thinking, *DTRS'10: Design Thinking Research Symposium*, Sydney, Australia.
- Maher, M.L. (2010). Evaluating Creativity in Humans, Computers, and Collectively Intelligent Systems, *DESIRE'10: Creativity and Innovation in Design*, Aarhus, Denmark.
- Maher, M.L. (2010). Design Creativity Research: From the Individual to the Crowd, in Toshiharu Taura and Yukari Nagai (eds) *Design Creativity 2010*, Springer-Verlag London, pp 41-50.
- Maher, M.L. (2010). What People Talk About In Virtual Worlds, In William Sims Bainbridge (Ed) *Online Worlds: Convergence Of The Real And The Virtual*, Series: Human-Computer Interaction Series, Springer-Verlag ISBN: 978-1-84882-824-7
- Maher, M.L. (2010). From theory to practice - 39 opinions. Mary Lou Maher. In A Williams, MJ Ostwald & HH Askland (eds) *Creativity, Design and Education. Theories Positions and Challenges*, Sydney: ALTC

2009

- Merrick, K. and Maher, M.L. (2009). *Motivated Reinforcement Learning: Curious Characters for Multiuser Games*, Springer-Verlag:Berlin/Heidelberg. <http://link.springer.com/book/10.1007/978-3-540-89187-1/page/1>
- Merrick, K., Maher, M.L.: (2009) Motivated Learning from Interesting Events: Adaptive, Multitask Learning Agents for Complex Environments, *Adaptive Behaviour*, SAGE Publications, Peter M. Todd (Ed.), Vol 17(1):7-27.
- Gul, L.F. and Maher, M.L.: (2009) Co-Creating External Design Representations: Comparing Face-To-Face Sketching to Designing in Virtual Environments, *CoDesign International Journal of CoCreation in Design and the Arts*, 2(9):117-138.
- Dong, A., Maher, M.L., Kim, M.J., Gu, N., and Wang, X. (2009) Construction Defect Management Using A Telematic Digital Workbench, *Automation in Construction*, 18(6):814-824.
- Maher, M.L., Gu, N., and Kim, M.J. (2009) Virtual Worlds and Tangible Interfaces: Collaborative Technologies That Change The Way Designers Think, *Proceedings of CollabTech 2009*.

2008

- Kim, M. J. and Maher, M.L. (2008). The Impact of Tangible User Interfaces on Spatial Cognition During Collaborative Design, *Design Studies*, 29(3):222-253. <http://dx.doi.org/10.1016/j.destud.2007.12.006>
- Kim, M. J. and Maher, M.L. (2008). The Impact of Tangible User Interfaces on Designers' Spatial Cognition, *Human-Computer Interaction A Journal of Theoretical, Empirical, and Methodological Issues of User Science and of System Design*, 23(2):101-137. <http://dx.doi.org/10.1080/07370020802016415>
- Maher, M.L., Merrick, K., Saunders, R. (2008) Achieving Creative Behaviour Using Curious Learning Agents, *AAAI Spring Symposium on Creative Intelligent Systems*, March 26-28, Stanford University, pp 40-46.
- Merrick, K., Maher, M-L., Saunders, R.: (2008) Achieving Adaptable Behaviour in Intelligent Rooms using Curious Supervised Learning Agents, *CAADRIA 2008, Beyond Computer Aided Design*, Chiang Mai, Thailand, pp 185-192.
- Merrick, K., Maher, M.L.: (2007) Motivated Reinforcement Learning for Adaptive Characters in Open-Ended Simulation Games, *ACM SIGCHI International Conference on Advances in Computer Entertainment Technology*, (ACE 2007), Salzburg, Austria, pp 127-134.

2007

- Maher, M.L. and Fruchter, R. (Guest Editors) (2007). Support for design teams *Artificial Intelligence for Engineering Design, Analysis and*

Manufacturing, **21**(3):201-202.

- Maher, M.L., Rosenman, M. and Merrick, K. (2007). Agents For Multidisciplinary Design In Virtual Worlds, *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, **21**(3):267-277.
- Gu, N and Maher, ML (2007). Designing Curious Places: Digital and Computing Technologies in the Workplace, in Calder J (ed), *Public #3 - Worklife*, Melbourne: WoodsBagot Research Press, 101-115.
- Maher, M.L. (2007). The Synergies Between Design Computing and Design Cognition, in *Computing in Civil Engineering*, L. Soibelman and B. Akinci (Eds), American Society of Civil Engineers.
- Gu N., Gul L. F., Maher M. L. (2007). Designing and Learning Within the Design: A Case Study of Principles for Designing and Teaching 3D Virtual Worlds, in *CAADRIA 2007: Proceedings of the 12th International Conference on Computer-Aided Architectural Design Research in Asia*, Nanjing, China, pp. 127-132.
- Kim, M.J. and Maher, M.L. (2007). Collaborative Design in a Tabletop System employing Tangible User Interfaces , in W. Shen (Ed.) *Proceedings of the 11th International Conference on Computer Supported Cooperative Work in Design*, IEEE.
- Maher, M. L., Merrick, K. and Saunders, R. (2007). From Passive To Proactive Design Elements: Incorporating Curious Agents Into Intelligent Rooms. in *Proceedings of CAADFutures 2007*.
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