

# Markus Tatzgern

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## *Curriculum Vitae*

### Personal Information

Position Senior Lecturer, Salzburg University of Applied Sciences  
Date of Birth 30 July 1982  
Nationality Austria  
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Web <http://markustatzgern.com> Note: The webpage contains detailed information about my research including papers and movies.

### Education

- 2015 Doctor of Philosophy (**PhD**, Dr.techn.), with highest distinction, Graz University of Technology
- Thesis: "Situated Visualization in Augmented Reality"
  - Supervisor: Prof. Dr. Dieter Schmalstieg, Co-supervisor: Dr. Denis Kalkofen, Referee: Prof. Dr. Kiyoshi Kiyokawa
- 2008 Master of Science (**MSc**, DI) with highest distinction, Graz University of Technology
- Thesis: "A Framework for Automatically Creating 3D Explosion Diagrams"
  - Supervisor: Prof. Dr. Dieter Schmalstieg, Co-supervisor: Dr. Denis Kalkofen
- 2005 Bachelor of Science (**BSc**, Bakk.techn.), Graz University of Technology

### Professional

- since 09/2015 **Senior Lecturer**, Augmented Reality and Game Development, Salzburg University of Applied Science, Austria
- Head of Game Development and Mixed Reality
  - Researching and developing interactive Mixed and Augmented Reality interfaces

- 02/2009–08/2015 **Research Assistant**, Institute for Computer Graphics and Vision, Graz University of Technology, Austria
- Researched and published Mixed and Augmented Reality interfaces that allow users to explore the real world
  - Developed a mobile platform for remote collaboration in Augmented Reality
- 04/2006–11/2008 **Software Developer**, Institute of Applied Geosciences, Graz University of Technology, Austria
- Developed software for documenting tunnel construction
  - Coordinated a team of developers
  - Engaged in all stages of software development from requirement specification to deployment and customer support

## Projects

- since 03/2017 **Optimierung des Online-Vertriebs durch Virtual Reality / Optimizing the Online Shopping Experience using Virtual Reality**  
 Funded by Federal State Salzburg, Austria  
 Role: Project acquisition, Senior Researcher
- 03/2010–08/2015 **Christian Doppler Laboratory for Handheld Augmented Reality**  
 Funded by Christian Doppler Society, Industrial partner: Qualcomm Inc.  
 Role: Researcher
- 01/2008–12/2008 **IPCity**, Integrated Project on Interaction and Presence in Urban Environments  
 Funded by European Union under contract FP-2004-IST-4-27571  
 Role: Developer

## Publications

- Retargeting Video Tutorials Showing Tools With Surface Contact to Augmented Reality.** Peter Mohr, David Mandl, Markus Tatzgern, Eduardo Veas, Dieter Schmalstieg and Denis Kalkofen, ACM Conference on Human Factors in Computing Systems (**CHI'17**), p. 6547-6558, 2017
- Adaptive User Perspective Rendering for Handheld Augmented Reality.** Peter Mohr, Markus Tatzgern, Jens Grubert, Dieter Schmalstieg, Denis Kalkofen, IEEE Symposium on 3D User Interfaces (**3DUI'17**), **Honorable Mention for Best Paper**, p. 176-181, 2017
- Temporal Coherence Strategies for Augmented Reality Labeling.** Jacob Boesen Madsen, Markus Tatzgern, Claus B. Madsen, Dieter Schmalstieg, Denis Kalkofen, IEEE Transactions on Visualization and Computer Graphics (**TVCG'16**), p. 1415-1423, 2016
- Adaptive Information Density for Augmented Reality Displays.** Markus Tatzgern, Valeria Orso, Denis Kalkofen, Giulio Jacucci, Luciano Gamberini, Dieter Schmalstieg, IEEE Virtual Reality (**VR'16**), p. 83-92, 2016

**Exploring real world points of interest: Design and evaluation of object-centric exploration techniques for augmented reality.** Markus Tatzgern, Raphael Grasset, Eduardo Veas, Denis Kalkofen, Hartmut Seichter, Dieter Schmalstieg, **Pervasive and Mobile Computing**, p. 55-70, 2015

**Hedgehog Labeling: View Management Techniques for External Labels in 3D Space.** Markus Tatzgern, Denis Kalkofen, Raphael Grasset, Dieter Schmalstieg, **IEEE Virtual Reality (VR'14)**, p. 27-32, 2014

**Transitional Augmented Reality Navigation for Live Captured Scenes.** Markus Tatzgern, Raphael Grasset, Denis Kalkofen, Dieter Schmalstieg, **IEEE Virtual Reality (VR'14)**, p. 21-26, 2014

**Dynamic compact visualizations for augmented reality.** Markus Tatzgern, Denis Kalkofen, Dieter Schmalstieg, **IEEE Virtual Reality (VR'13)**, p. 3-6, 2013

**Exploring Distant Objects with Augmented Reality.** Markus Tatzgern, Raphael Grasset, Eduardo Veas, Denis Kalkofen, Hartmut Seichter, Dieter Schmalstieg, **Joint Virtual Reality Conference of EGVE \ EuroVR'13**, p. 49-56, 2013

**Image-driven view management for augmented reality browsers.** Raphael Grasset, Tobias Langlotz, Denis Kalkofen, Markus Tatzgern, Dieter Schmalstieg, **International Symposium on Mixed and Augmented Reality (ISMAR'12)**, p. 177-186, 2012

**Multi-perspective Compact Explosion Diagrams.** Markus Tatzgern, Denis Kalkofen, Dieter Schmalstieg, **Computers & Graphics**, p. 135-147, 2011

**Embedded Virtual Views for Augmented Reality Navigation.** Markus Tatzgern, Denis Kalkofen, Raphael Grasset, Dieter Schmalstieg, **Workshop on Visualization in Mixed Reality Environments**, **International Symposium on Mixed and Augmented Reality (ISMAR'11)**, 2011

**Compact explosion diagrams.** Markus Tatzgern, Denis Kalkofen, Dieter Schmalstieg, **Non-Photorealistic Animation and Rendering (NPAR'10)**, p. 17-26, 2010

**Explosion Diagrams in Augmented Reality.** Denis Kalkofen, Markus Tatzgern, Dieter Schmalstieg, **IEEE Virtual Reality (VR'09)**, p. 71-78, 2009

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## Patents

- 2015 Hierarchical Clustering for View Management Augmented Reality. Markus Tatzgern, Denis Kalkofen, Dieter Schmalstieg, Raphael Grasset. WO Patent, Publication number 2015142576, September 2015
- 2013 Image-Driven View Management for Annotations. Raphael Grasset, Markus Tatzgern, Tobias Langlotz, Denis Kalkofen and Dieter Schmalstieg. WO Patent, Publication number 2013176830, November 2013
- 2012 Efficient Information Presentation for Augmented Reality. Markus Tatzgern, Denis Kalkofen and Dieter Schmalstieg. WO Patent, Publication number 2012033768, March 2012

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## Professional Activities

### Program Committee

2016 IEEE Virtual Reality Conference

### Reviewing

since 2009 IEEE ISMAR, IEEE VR, ACM CHI, ACM VRST, ACM MobileHCI, ACM SUI, MUM, Eurographics, C&G, Austrian Research Promotion Agency (FFG)

### Invited Talks

2017 Virtual und Augmented Reality für den Bildungsbereich / Virtual and Augmented Reality in Education, eEducation Praxistagung, Pädagogische Hochschule Salzburg, Salzburg, Austria

2015 Next Generation Augmented Reality Games, Extended Games Day, Hochschule der Medien, Stuttgart, Germany

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## Teaching Experience

### Salzburg University of Applied Sciences

since 2015 Game Development 1 (Lecture and Lab)

since 2016 Game Development 2 (Lecture and Lab)

since 2016 Computer Graphics (Lecture and Lab)

since 2016 Study&Presentation Skills

since 2017 Real-Time Visualization (Lecture and Lab)

since 2017 Mixed Reality Technologies (Lecture and Lab)

2016 Advanced Topics of Game Development and Augmented Reality (Lecture and Lab)

2016 Mixed Reality Interaction (Lecture and Lab)