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Graz University of Technology
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Education

Graz, Austria	Graz University of Technology (TUG)	Since Fall 2006
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- PHD in Engineering Sciences; Computer Sciences (in progress)
 - Major research areas: Game Development, Computer Graphics, Game Design, Immersive Environments, Data Visualization
- M.Sc. in Software Development and Business Management, March 2013.
 - Master's Thesis: The Virtual TEAL World – An Interactive and Collaborative Virtual World Environment for Physics Education; supervised by Christian Gütl (TUG) and John Belcher (MIT): Development of a Java-based simulation framework in a virtual world environment for physics education
 - Master's Project: Development of a web-based framework to automatically visualize updated RDF-data
 - Major research areas: Information Systems, Web Development, Knowledge Management, Semantic Technologies, Internet Technologies, Human-Computer Interaction, Information Retrieval, Digital Libraries
- B.Sc. in Software Development and Business Management, Jan 2011.
 - Bachelor's Thesis: Development of a Java-based expert system for software cost estimation

Cambridge, MA	Massachusetts Institute of Technology (MIT)	2011 - 2012
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- Visiting Student at Center for Educational Computing Initiatives (CECI) under the supervision of Prof. John Belcher

Employment

Software Engineer, Researcher	Graz University of Technology	2013-2014
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- Austria-Forum (Information Wiki for Austria and digital library for old Austrian books), under the supervision of Prof. em. Hermann Maurer

University Assistant	Graz University of Technology	Since Sept 2013
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- Teaching Courses:
 - Information, Search and Retrieval (master's course); theoretical background and practical exercises on information searching and retrieval
 - Social Media Technologies (master's course); methods and algorithms for analyzing social media data and applications such as Wikipedia, Twitter, Virtual Worlds, and others
 - Game Design and Development; background on game design and development theory followed by supervising group projects
 - Game Design and Development II; advanced background on game design and development theory followed by supervising group projects
 - Applications of Innovative Technology (seminar); discussion of new HCI devices and technologies



- Supervision of student projects, bachelor's thesis and master's thesis in the areas game development, gamification design, digital libraries, human-computer interaction, virtual environments, data visualization, e-learning environments, and Android application development

Project Assistant **Graz University of Technology** **2010 - 2012**

- 2012 “Adaptive Learning via Intuitive/Interactive, Collaborative and Emotional Systems” (ALICE), European Commission FP7 program, Researcher (Exploitation and Dissemination activities)
- 2010 - 2012 “Cross Boarder Virtual Incubator” (CBVI), European Commission Lifelong Learning Program, multilateral projects, researcher (design and development of the Java-based e-learning framework (virtual world environment), dissemination and exploitation activities)

Teaching Assistant **Graz University of Technology** **2009 - 2012**

- Semantic Technologies, Institute of Knowledge Management
- Human-Computer-Interface, Institute for Information Systems and Computer Media
- Project Management in Software Development, Institute for Information Systems and Computer Media

Quality Assurance Tester **Electronic Arts Madrid** **Summer 2008, 2009, 2010**

- Involved in AAA-titles such as FIFA, Need for Speed, and Dead Space

Research Areas of Interest

- E-Learning in virtual and immersive environments
- Virtual STEM education (e.g. simulation of physics experiments)
- Game design, game development, and gamification
- Information retrieval, semantic technologies, and data visualization
- Digital libraries and online books

Technologies and Skills

- Projects completed with: Java, C, C++, C#, PHP, JSP, JavaScript, Python,..
- Game design, game development: Unity3D, Different Game Engines: E.g. Marte Engine, JMonkey Engine
- Netbeans, Eclipse, Matlab, Visual Studio, MySQL Server, Several CMS Systems, Open Wonderland, Lucene,..
- Experience in mobile development and interest in trying different input and display forms with focus on AR and VR devices (projects including MS Kinect and Oculus Rift)
- Languages: Mother tongue German, fluent in English, advanced Italian, basics in Latin and Spanish

Publications

Books/Journals (Eds.)

- [1] M. Gardner, C. Gütl, J. Pirker, and J. Richter (Eds.): Workshop, Short Paper and Poster Proceedings from the inaugural Immersive Learning Research Network Conference (iLRN 2015 Prague) ISBN (e-book) 978-3-85125-412-9
- [2] Ebner, M., Erenli, K., Malaka, R., Pirker, J., & Walsh, A. E. (Eds.). (2015). *Immersive Education: 4th European Summit, EiED 2014, Vienna, Austria, November 24-26, 2014, Revised Selected Papers* (Vol. 486). Springer.
- [3] Pirker, J., Ebner, M., Erenli, K., Malaka, R., & Walsh, A. E. (Eds.). (2014). *E-iED 2014 Proceedings: 4th European Summit, EiED 2014, Vienna, Austria, November 24-26, 2014, ISSN 2325-5048*.

Book Chapters

- [4] Pirker, J., Riffnaller-Schiefer, M., Tomes, L. M., & Gütl, C. (2016). Motivational Active Learning in Blended and Virtual Learning Scenarios: Engaging Students in Digital Learning. In Handbook of Research on Engaging Digital Natives in Higher Education Settings (pp. tba). IGI Global.
- [5] Scherer, R., Müller-Putz, G., Friedrich, E. V., Pammer-Schindler, V., Wilding, K., Keller, S., &

Pirker, J. (2015). Games for BCI Skill Learning.

- [6] Pirker, J., Gütl, C. 2014. Educational Gamified Science Simulations. In Gamification in Education and Business, Reiner, T., Wood, L. C., Springer

Journal Publications

- [7] Pirker, J., Wurzinger, G. (2016). Optical Character Recognition of Old Fonts – A Case Study. The IPSI BgD Transactions on Advanced Research. 12(1).
- [8] Pirker, J., Gütl, C., Weiner, P., Garcia-Barrios, V.: Application Domains for a Location-based Mobile Application Creator. International Journal of Interactive Mobile Technologies iJIM (accepted)
- [9] Pirker, J., Gütl, C., & Weghofer, P. 2014. Application Scenarios of Interactive Science Fiction Prototyping in Virtual Worlds for Education. In EAI Endorsed Transactions: Future Intelligent Educational Environments.
- [10] Pirker, J., Gütl, C., Weghofer, P., & Feichtner, V. 2014. Interactive Science Fiction Prototyping in Virtual Worlds: Fundamentals and Applications. In International Journal of Recent Contributions from Engineering, Science & IT (iJES). pp. 46-52
- [11] Pirker, J., Wurzinger, G., & Müller, H. 2014. Web Books: The Fusion of Paper and Pixels. In Transactions on Internet Research, 10 (2).

Conference Proceedings

- [12] Pirker, J., Kultima, AK., & Gütl, C. (2016). The Value of Game Prototyping Projects for Students and Industry. In Proceedings of the International Conference on Game Jams, Hackathons, and Game Creation Events (GJH&GC '16). ACM, New York, NY, USA, 54-57.
- [13] Pürcher, P., Höfler, M., Pirker, J., Tomes, L., Ischebeck, A. & Gütl, C., (in press). Individual vs. collaborative learning in a virtual world. Paper accepted for MIPRO 2016.
- [14] Pirker, J., Gütl, C. (2015, July). Virtual Worlds for 3D Visualizations. Advancing Physics Learning Through Traversing a Multi-Modal Experimentation Space. In Workshop Proceedings of the 11th International Conference on Intelligent Environments (Vol. 19, p. 373). IOS Press.
- [15] Kuhn, J., Nussbaumer, A., Pirker, J., Karatzas, D., Pagani, A., Conlan, O., Memmel, M., Steiner, C., Gütl, C., Albert, D., Dengel, A. (2015, July). Advancing Physics Learning Through Traversing a Multi-Modal Experimentation Space. In Workshop Proceedings of the 11th International Conference on Intelligent Environments (Vol. 19, p. 373). IOS Press.
- [16] Gütl, C., Cheong, C., Cheong, F., Chang, V., Nau, S. Z., & Pirker, J. (2015, September). Expectations of the generation NeXt in higher education: Learning engagement approaches in information sciences subjects. In *Interactive Collaborative Learning (ICL), 2015 International Conference on* (pp. 205-214).
- [17] Pirker, J., Gütl, C., Astatke, Y. 2015. Enhancing Online and Mobile Experimentations with Gamification Strategies. 3rd Experiment@ International Conference, exp.at'15
- [18] Pirker, J., Weiner, P., Gütl, C., Garcia Barrios, V., & Tomnitz, M. 2014. Location-based Mobile Application Creator: Creating Educational Mobile Scavenger Hunts. In Proceedings of the International Conference on Interactive Mobile Communication Technologies and Learning (IMCL '14).
- [19] Pirker, J., Riffnaller-Schiefer, M., & Gütl, C. 2014. Motivational active learning: engaging university students in computer science education. In Proceedings of the 2014 conference on Innovation & technology in computer science education (ITiCSE '14). ACM, New York, NY, USA, 297-302.
- [20] Pirker, J., Gütl, C., & Kappe, F. 2014. Collaborative programming exercises in virtual worlds (abstract only). In Proceedings of the 45th ACM technical symposium on Computer science education (SIGCSE '14). ACM, New York, NY, USA, 719-719. DOI=10.1145/2538862.2544286
- [21] Pirker, J., & Gütl, C.. 2014. Motivational active learning for computer science education (abstract only). In Proceedings of the 45th ACM technical symposium on Computer science education (SIGCSE '14). ACM, New York, NY, USA, 711-711. DOI=10.1145/2538862.2544285
- [22] Weichhart, G., Pirker, J., Gütl, C., & Stary, C. 2014. 3D Progressive Education Environment for S-

BPM. S-BPM ONE – Scientific Research – Proceedings of the 6th International Conference 2014, Serie CCIS – Communication in Computer and Information Science, Springer, Berlin Heidelberg, Germany

- [23] Pirker, J., Weghofer, P., & Gütl, C. 2013. Science Fiction Prototyping: Flexible Settings in Immersive Environments. Proceedings of the Interactive Computer aided Blended Learning Conference ICBL.
- [24] Pirker, J., Gütl, C., Belcher, J. W., & Bailey, P.H. 2013. Design and Evaluation of a Learner-Centric Immersive Virtual Learning Environment for Physics Education. SouthCHI 2013. 551-561
- [25] Pirker, J., Berger, S., Gütl, C., Belcher, J., & Bailey, P.H. 2012. Understanding physical concepts using an immersive virtual learning environment. - in: in Gardner, M. and Garnier, F. and Kloos, C.D. (ed), iED 2012. Proceedings of the 2nd European Immersive Education Summit. pp. 183-191
- [26] Pirker, J., & Gütl, C. 2012. Iterative evaluation of a virtual three-dimensional environment for start-up entrepreneurship in different application scenarios. - in: in Proceedings of the 2012 15th International Conference on Interactive Collaborative Learning (ICL), Villach, Austria: Carinthia University of Applied Sciences. pp. 1 – 6
- [27] Pirker, J., & Gütl, C. 2012. Virtuelle 3D-Welten als Lernmedium für Jungunternehmer und Gründerzentren. - in: E-Didaktik - Lernen in virtuellen sozialen Räumen [Virtual 3D Worlds as learning instrument for business incubators and start-up entrepreneurs – in an Austrian journal] pp. 90 - 97
- [28] Gütl, C., & Pirker, J. 2011. Implementation and Evaluation of a Collaborative Learning, Training and Networking Environment for Start-Up Entrepreneurs in Virtual 3D Worlds. - in: International Conference Interactive Computer Aided Learning. pp. 56 – 66

Workshops Publications & DC

- [29] Pirker, J., Gütl, C. (2015). Advancing Game Design with Eye-tracking and Think-aloud Studies. GURTOOLS Workshop at CHI PLAY, London, UK.
- [30] Pirker, J., Voll, K.: Group Forming Processes - Experiences and Best Practice from Different Game Jams. Workshops on Game Jams, Hackathons, and Game Creation Events at FDG 2015. (Workshop Paper)\
- [31] Pirker, J.: Virtual Worlds as Engaging Collaborative Experience (Engagement Strategies from Games, Gamification, and Virtual Worlds). Connecting Collaborative & Crowd Work with Online Education at CSCW 2015. (Workshop Paper)
- [32] Andrews, K., Pirker, J., Sabol, V.: Future Directions for Visualisation. Envisioning Visualisation Without Desktop Computing Workshop co-located with IEEE Vis 2014. (Workshop Paper)

Invited Talks (Paper Presentations excluded)

- Mar 10, “Crossing: Virtual Experiences, Games, and Teaching”, SRI International, CA
- Feb 4, Subotron “Know your Player”, Vienna, Austria
- Engaging Media Technologies in Modern Learning Settings. - in: HarvardX Research Seminar. HarvardX, Cambridge, US
- Crossing: Virtual Experiences, Games and Teaching, Ludics Seminar, Harvard, Cambridge, US
- Lunchtime Lecture “3D Immersive Digital Humanities” KF Uni Graz, ZIMG Graz, Austria
- EYA Game Jam, Final Moderation, 2015
- And what do we now? Steps after the Game Jam, Keynote at Klagenfurter Game Jame, 2015
- Innovation by Game Design, Game Jam Graz, Jan 2015
- Usability Testing and Eye Tracking. – in: IEEE Education Society Technical Meeting with Andrews, K., December 2014

- Interview with the national radio station: ORF series (OE1) "Matrix" about virtual worlds for physics education, September 2014
- Virtual Worlds, Galileo Educational System Universidad Galileo, November 2013 (virtual presentation)
- Presentation of the Virtual Incubator World, iED Summit Boston, June 2012 (virtual presentation)
- Presentation of the Virtual Incubator World, iED Europe Summit Madrid, November 2011 (virtual presentation)
- Entrepreneurship Training using Immersive Virtual Worlds (Talk in German Language), ÖAD, Vienna, September 2011 (invited talk)
- Interview with the national radio station: ORF series (OE1) "Digital Leben" about cooperation of IICM with MIT about 3D-worlds for training, July 2011

Honors and Awards

- Anita Borg Scholar, Grace Hopper Celebration, TX, Houston (2016)
- Scholarship for Heidelberg Laureate Forum, Germany (2016)
- Global Game Jam Scholarship to attend GDC 2015, San Francisco (2016)
- OEFG (Österreichische Forschungsgemeinschaft) International Communications Grant for attending FDG 2015, Pacific Grove, CA, USA (2015)
- ACM-W Scholarship for CSCW 2015, Vancouver, BC, Canada (2015)
- Google Travel Grant for JSConf EU 2014 Berlin, Germany (2014)
- ACM Grant for SIGCSE 2014 New Educators Workshop, Atlanta, US (2014)
- Named Scholarship of the Faculty of Computer Science, Graz University of Technology (2012)
- Named Scholarship Marshall Plan (Austrian Marshall Plan Foundation) (2011-2012)

Teaching

- **Game Design and Development II**; advanced background on game design and development theory followed by supervising group projects, [Graz University of Technology](#)
- **Applications of Innovative Technology (seminar)**; discussion of new HCI devices and technologies, [Graz University of Technology](#)
- **Information, Search and Retrieval** (master's course); Fall/Winter Term (theoretical background and practical exercises on information searching and retrieval), [Graz University of Technology](#)
- **Social Media** (master's course); Summer Term (methods and algorithms for analyzing social media data and applications such as Wikipedia, Twitter, virtual worlds, and others), [Graz University of Technology](#)
- **Game Design and Development**; Fall/Winter Term (background on game design and development theory followed by supervising group projects), [Graz University of Technology](#)
- **Game Development in Unity 3D**; Spring 2015, DARIAH International Digital Humanities Spring School (funded by ERASMUS), [Georg-August-University Göttingen, Germany](#)
- **3D Virtual World Design and Development**; Summer 2014, DARIAH International Digital Humanities Summer School (funded by ERASMUS), [Georg-August-University Göttingen, Germany](#)

Conference, Event, Workshop Organizations

- iLRN Conference 2016 in Santa Barbara, special session chair and conference organization support immersivelrn.org/ilrn-2016
- iLRN Conference 2015 in Prague, special session chair and conference organization support immersivelrn.org/ilrn-2015-conference

- Workshop on Game Jams, Hackathons and Game Creation Events (co-located with FDG 2015)
<http://globalgamejam.org/workshop2015>
- Uxcamp Graz
<http://barcamp-graz.at/information/uxcamp/>
- Global Game Jam 2015 at Graz University of Technology, local co-organization
<http://globalgamejam.org/2015/jam-sites/global-game-jam-graz>
- Game Jam Graz, September 2014 at Graz University of Technology, main organization
jam.gamelabgraz.com
- European Immersive Education Conference 2014 in Vienna, local co-organization and special sessions chair
<http://europe.immersiveeducation.org/events/ied-europe-summit-2014>
- Global Game Jam 2014 at Graz University of Technology, local co-organization
<http://globalgamejam.org/2014/jam-sites/global-game-jam-graz>
- On The Move Conferences 2013, local co-organization
<http://www.onthemove-conferences.org/>
- World Usability Day in Graz 2013, student volunteer
<http://www.worldusabilityday.at/>

Selected Program Committee and Reviewing Services:

- iLRN, SIGCSE, CHI PLAY, ICEC, GJ Workshop at FDG, MATEL Workshop at EC-TEL, CEEC, E-iED, ICL

Extra-Curricular Activities

- Participation at different hackathons and game jam activities (e.g. Global Game Jam 2012 at Singapore-MIT GAMBIT Game Lab (<http://archive.globalgamejam.org/2012/hoopsnake>), or IEEEExtreme Programming Competition)
- Community contributions to the Java-based open-source project Open Wonderland
- Supervision and introduction of freshmen in computer science