

EELKE FOLMER - CV

University of Nevada
Computer Science
eelke.folmer@gmail.com

EDUCATION

- 2005 **PhD, Computer Science**, University of Groningen, The Netherlands.
Area: Software Engineering/Human Computer Interaction; Advisor: Jan Bosch.
Thesis: Software Architecture Analysis of Usability.
- 2001 **MS, Computer Science**, University of Groningen, The Netherlands.
Area: Software Engineering, Databases; Advisor: Ben Spaanenburg and Frits Greuter
Thesis: Distributed Database Performance for the Tetranode System.

AWARDS

- 2016 Drones for Good Award (finalist).
2015 Nevada Rising Research Award (Nevada Board of Regents).
2013 Faculty Excellence Award (UNR College of Engineering).
2013 Google Faculty Research Award.
2013 Microsoft Software Engineering Innovation Award.
2012 Nevada Federation of the Blind: Friend of the Blind Award.
2012 People for the Ethical Treatment of Animals (PETA) Proggy Award.
2010 DaVinci Award (Finalist).
2007 Junior Faculty Research Award (University of Nevada).

EMPLOYMENT

- 2012-today **Associate Professor**, Department of Computer Science and Engineering, University of Nevada, Reno.
2016-today **CEO, VRmersive** - a virtual reality startup.
2014 **Visiting Scientist**, Google Research, Mountain View.
2006-2012 **Assistant Professor**, Department of Computer Science and Engineering, University of Nevada, Reno.
2005-2006 **Postdoctoral Fellow**, Department of Computer Science, University of Alberta, Edmonton.
2001-2005 **Graduate Research Assistant**, Department of CS, University of Groningen.
2000-2001 **Researcher**, Rohill Technologies, Hoogeveen.
1998-2000 **Software Engineer**, Notenbomer Internet Center, Groningen.

FUNDING

- 2015-2016 **National Science Foundation**, WORKSHOP: Doctoral Consortium at ASSETS 2015,
Award to **Eelke Folmer** (PI) \$22,854
- 2014-2015 **Partners for Sight Foundation**, Navatar: An Indoor Navigation System for Users who are Blind,
Award to **Eelke Folmer** (PI) \$150,000, 2% funding rate.
- 2014-2015 **National Science Foundation**, EAGER: Guide Drones for Blind Athletes, CHS Award #1445380 to
Eelke Folmer (PI) \$72,080
- 2014-2015 **Nevada Advanced Autonomous Systems Innovation Center**, Navatar-App: Ubiquitous Indoor
Navigation for Users who are Blind, Award to **Eelke Folmer** (PI) \$15,000
- 2013-2014 **Google Research**, An Indoor Navigation System for Blind Users using Google Glass, Google Research
Award to **Eelke Folmer** (PI) \$40,208, 19% funding rate.
- 2013-2014 **Microsoft Research**, ASK: An Assistive Spatial Knowledge Navigator for Users who are Blind,
Software Engineering Innovation Foundation Award to **Eelke Folmer** (PI) \$25,000, 11% funding rate.
- 2012-2015 **National Science Foundation**, Proprioceptive Displays to Engage Blind Users into Healthy Whole
Body Interaction, HCC Award #1118074 to **Eelke Folmer** (PI) \$410,220, 8% funding rate.
- 2011-2014 **National Science Foundation**, TextSL: A Virtual World Interface for Visually Impaired, HCC Award
#0917362 to **Eelke Folmer** (PI) and George Bebis (Co-PI) \$499,332, 11% funding rate.
- 2007-2009 **National Science Foundation**, SGER: Developing an Accessible Client for Second Life, HCC Award
#0738921 to **Eelke Folmer** (PI) \$90,488.

- 2007-2008 **Bally Technologies**, Exploration of research Directions to Provide Solutions for Improving Quality Assurance at Bally Technologies, Award to Sergiu Dascalu (PI), **Eelke Folmer** (CO-PI), Bobby Bryant and Murat Yuksel \$112,972
- 2007 **University of Nevada**, Improving the Accessibility of Video Games, Junior Faculty Research Grant to **Eelke Folmer** (PI), \$15,000

RESEARCH IMPACT

Total publications: 49

h-index: 18

Total citations: 1215

i10-index: 22

Retrieved with [Google Scholar](#) on December 28, 2015.

CONFERENCE PAPERS

- [c36] Sam Tregillus and **Eelke Folmer**. Vr-step: Evaluation of walking-in-place for hands free navigation in mobile vr environments. In Proceedings of the 34rd Annual ACM Conference on Human Factors in Computing Systems (CHI'16), To appear, 2016.
- [c35] Ilias Apostolopoulos, Daniel S. Coming, and **Eelke Folmer**. Accuracy of pedometry on a head-mounted display. In Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems, CHI '15, pages 2153–2156, 2015.
- [c34] Halim Cagri Ates, Alexander Fiannaca, and **Eelke Folmer**. Immersive simulation of visual impairments using a wearable see-through display. In Proceedings of the Ninth International Conference on Tangible, Embedded, and Embodied Interaction, TEI '15, pages 225–228, 2015.
- [c33] Alexander Fiannaca, Ilias Apostolopoulos, and **Eelke Folmer**. Headlock: A wearable navigation aid that helps blind cane users traverse large open spaces. In Proceedings of the 16th International ACM SIGACCESS Conference on Computers & Accessibility (ASSETS), pages 19–26, 2014.
- [c32] Burkey Sucu and **Eelke Folmer**. The blind driver challenge: Steering using haptic cues. In Proceedings of the 16th International ACM SIGACCESS Conference on Computers & Accessibility (ASSETS), pages 3–10, 2014.
- [c31] Vinitha Khambadkar and **Eelke Folmer**. A tactile-proprioceptive communication aid for users who are deafblind. In Proceedings of Haptics Symposium (HAPTICS), pages 239–245, 2014.
- [c30] Tony Morelli, Lauren Lieberman, John Foley, and **Eelke Folmer**. An exergame to improve balance in children who are blind. In Proceedings of Foundations of Digital Interactive Games (FDG), 2014.
- [c29] Ilias Apostolopoulos, Navid Fallah, **Eelke Folmer**, and Kostas Bekris. Integrated online localization and navigation for people with visual impairments using smart phones. *ACM Transactions on Interactive Intelligent Systems*, 3(4):1–25, 2014.
- [c28] Tony Morelli and **Eelke Folmer**. Real-time sensory substitution to enable players who are blind to play video games using whole body gestures. *Entertainment Computing*, 5(1):83 – 90, 2014.
- [c27] Miran Kim, Jeff Angermann, George Bebis, and **Eelke Folmer**. Vizical: accurate energy expenditure prediction for playing exergames. In Proceedings of the 26th annual ACM symposium on User interface software and technology, UIST '13, pages 397–404, 2013.
- [c26] Vinitha Khambadkar and **Eelke Folmer**. GIST: a gestural interface for remote nonvisual spatial perception. In Proceedings of the 26th annual ACM symposium on User interface software and technology (UIST), pages 301–310, 2013.
- [c25] Alexander Fiannaca, Tony Morelli, and **Eelke Folmer**. Haptic target acquisition to enable spatial gestures in nonvisual displays. In Proceedings of the 2013 Graphics Interface Conference (GI), pages 213–219, 2013.
- [c24] Ilias Apostolopoulos, **Eelke Folmer**, and George Bebis. Improving accessibility of virtual worlds by automatic object labeling. In Proceedings of International Symposium on Visual Computing (ISVC), volume of Lecture Notes in Computer Science, pages 254–265, 2013.
- [c23] Burkey Sucu and **Eelke Folmer**. Haptic interface for non-visual steering. In Proceedings of the international conference on Intelligent user interfaces (IUI), IUI '13, pages 427–434, 2013.

- [c22] Ilias Apostolopoulos, Navid Fallah, **Eelke Folmer**, and Kostas Bekris. Integrated online localization and navigation for people with visual impairments using smart phones. In Proceedings of IEEE International Conference on Robotics and Automation (ICRA), pages 1322–1329, may 2012.
- [c21] Navid Fallah, Ilias Apostolopoulos, Kostas Bekris, and **Eelke Folmer**. The user as a sensor: navigating users with visual impairments in indoor spaces using tactile landmarks. In Proceedings of the ACM annual conference on Human Factors in Computing Systems (CHI), pages 425–432, 2012.
- [c20] Tony Morelli and **Eelke Folmer**. Twuist: A discrete tactile-proprioceptive display for eye and ear free output on mobile devices. In Proceedings of Haptics Symposium 2012 (HAPTICS'12), pages 443–450, 2012.
- [c19] **Eelke Folmer** and Tony Morelli. Spatial gestures using a tactile-proprioceptive display. In Proceedings of the Sixth International Conference on Tangible, Embedded and Embodied Interaction (TEI), pages 139–142, 2012.
- [c18] Daniel Ramos and **Eelke Folmer**. Supplemental sonification of a bingo game. In Proceedings of Foundations of Digital Interactive Games (FDG'11), pages 168–173, 2011.
- [c17] **Eelke Folmer**, Fangzhou Liu, and Barrie Ellis. Navigating a 3D avatar using a single switch. In Proceedings of Foundations of Digital Interactive Games (FDG'11), pages 154–160, 2011.
- [c16] Tony Morelli and **Eelke Folmer**. Real-time sensory substitution to enable players who are blind to play gesture based videogames. In Proceedings of Foundations of Digital Interactive Games (FDG'11), pages 147–153, 2011.
- [c15] Bugra Oktay and **Eelke Folmer**. Syntherella: a feedback synthesizer for efficient exploration of virtual worlds using a screen reader. In Proceedings of Graphics Interface 2011 (GI'11), pages 65–70, 2011.
- [c14] Ilias Apostolopoulos, Navid Fallah, **Eelke Folmer**, and Kostas Bekris. Feasibility of interactive localization and navigation of people with visual impairments. In Proceedings of the 11th IEEE Intelligent Autonomous Systems (IAS), pages 22–32, August 2010.
- [c13] Tony Morelli, John Foley, Lauren Lieberman, and **Eelke Folmer**. Pet-n-punch: upper body tactile/audio exergame to engage children with visual impairments into physical activity. In Proceedings of Graphics Interface 2011 (GI'11), pages 223–230, 2011.
- [c12] Tony Morelli, John Foley, and **Eelke Folmer**. VI-Bowling: a tactile spatial exergame for individuals with visual impairments. In Proceedings of the 12th international ACM SIGACCESS conference on Computers and accessibility (ASSETS'10), pages 179–186, 2010.
- [c11] Bugra Oktay and **Eelke Folmer**. Synthesizing meaningful feedback for exploring virtual worlds using a screen reader. In Proceedings of the 28th of the international conference extended abstracts on Human factors in computing systems (CHI'10), pages 4165–4170, 2010.
- [c10] Bei Yuan, Manjari Sapre, and **Eelke Folmer**. Seek-n-tag: a game for labeling and classifying virtual world objects. In Proceedings of Graphics Interface 2010 (GI'10), pages 201–208, 2010.
- [c9] Tony Morelli, John Foley, Luis Columna, Lauren Lieberman, and **Eelke Folmer**. VI-Tennis: a vibrotactile/audio exergame for players who are visually impaired. In Proceedings of the Fifth International Conference on the Foundations of Digital Games, FDG '10, pages 147–154, 2010.
- [c8] **Eelke Folmer**, Bei Yuan, Dave Carr, and Manjari Sapre. Textsl: a command-based virtual world interface for the visually impaired. In Proceedings of the 11th international ACM SIGACCESS conference on Computers and accessibility (ASSETS'09), pages 59–66, 2009.
- [c7] **Eelke Folmer**. Usability patterns in games. In Proceedings the International Academic Conference on the Future of Game Design and Technology (Futureplay'06), 2006.
- [c6] Bei Yuan and **Eelke Folmer**. Blind hero: enabling guitar hero for the visually impaired. In Proceedings of the 10th international ACM SIGACCESS conference on Computers and accessibility (ASSETS'08), pages 169–176, 2008.
- [c5] **Eelke Folmer**. Component based game development – a solution to escalating costs and expanding deadlines? In Proceedings of 10th International ACM SIGSOFT Symposium on Component-Based Software Engineering (CBSE'07), pages 66–73, 2007.
- [c4] **Eelke Folmer** and Jan Bosch. Cost effective development of usable systems: Gaps between hci and software architecture design. In Proceedings of the 14th International Conference on Information Systems

Development: Methods and Tools, Theory and Practice (ISD'05), pages 337–349, 2006.

- [c3] **Eelke Folmer** and Jan Bosch. Case studies on analyzing software architectures for usability. In Proceedings of 31st EUROMICRO Conference on Software Engineering and Advanced Applications (SEAA'05), pages 206 – 213, 2005.
- [c2] **Eelke Folmer**, Jilles van Gurp, and Jan Bosch. Software architecture analysis of usability. In Proceedings of the 9th IFIP International Conference on Engineering for Human Computer Interaction (EHCI'04), pages 111–112, 2004.
- [c1] **Eelke Folmer** and Jan Bosch. Usability patterns in software architecture. In Proceedings of the 10th International Conference on Human-Computer Interaction (HCI'03), pages 93–97, 2003.

JOURNAL PAPERS

- [j10] Tony Morelli and **Eelke Folmer**. Real-time sensory substitution to enable players who are blind to play video games using whole body gestures. *Entertainment Computing*, 5(1):83 – 90, 2014.
- [j9] Ilias Apostolopoulos, Navid Fallah, **Eelke Folmer**, and Kostas Bekris. Integrated online localization and navigation for people with visual impairments using smart phones. *ACM Transactions on Interactive Intelligent Systems*, 3(4):1–25, 2014.
- [j8] Navid Fallah, Ilias Apostolopoulos, Kostas Bekris, and **Eelke Folmer**. Indoor human navigation systems: a survey. *Interacting with Computers*, 25(1):21–33, 2013.
- [j7] Tony Morelli, John Foley, Lauren Lieberman, and **Eelke Folmer**. Improving the lives of youth with vi through exergames. *INSIGHT: Research and Practice in Visual Impairment and Blindness*, 4(4):160–170, 2011.
- [j6] Bei Yuan, **Eelke Folmer**, and Frederick C. Harris, Jr. Game accessibility: a survey. *Universal Access in the Information Society*, 10:81–100, 2011.
- [j5] **Eelke Folmer** and Jan Bosch. Experiences with software architecture analysis of usability. *International Journal of Information Technology and Web Engineering*, 3(4):1–29, 2008.
- [j4] **Eelke Folmer** and Jan Bosch. A pattern framework for software quality assessment and tradeoff analysis tradeoffs. *International Journal of Software Engineering and Knowledge Engineering*, 17(4):515–538, 2007.
- [j3] **Eelke Folmer**, Martijn van Welie, and Jan Bosch. Bridging patterns - an approach to bridge gaps between SE and HCI. *Journal of Information and Software Technology*, 48:69–89, 2006.
- [j2] **Eelke Folmer** and Jan Bosch. Architecting for usability; a survey. *Journal of Systems and Software*, 70(1), 2004.
- [j1] **Eelke Folmer**, Jilles van Gurp, and Jan Bosch. A framework for capturing the relationship between usability and software architecture. *Software Process: Improvement and Practice*, 8(2):67–87, 2003.

BOOK CHAPTERS

- [b2] **Eelke Folmer**. Video games for users with visual impairments. In *Assistive Technology for Blindness and Low Vision*, Sri H. Kurniawan and Roberto Manduchi, editors. Taylor & Francis, 2012.
- [b1] **Eelke Folmer**. Accessibility. In *Encyclopedia of Video Games: The Culture, Technology, and Art of Gaming*, Mark. Wolf, editor, pages 3–5, 2012.

PATENTS

- 2015 **Eelke Folmer**. Interactive Display using Head-mounted Motion sensor, US provisional patent filed.
- 2012 **Eelke Folmer**, George Bebis, Jeff Angermann. Tracking program and method, US patent in review.

MEDIA COVERAGE

- Oct. 2015 [The Brave New World of Generation Open](#), BBC Click.
- Oct. 2015 [Fitness Technology That Helps the Blind Get Moving](#), MIT Technology Review.
- Oct. 2013 [Exploring the use of an aerial robot to guide blind runners](#), ACM SIGACCESS Newsletter.
- Oct. 2013 [SIMVIZ simulates visual impairments with see-through VR display](#), GizMag Magazine
- Aug. 2013 [Camera Lets Blind People Navigate with Gestures](#), MIT Technology Review.
- Aug. 2013 [Blind games: The next battleground in Accessibility](#), Polygon.

July 2013 [For blind campers, a first chance to swim and canoe](#), Reuters.
June 2013 [Game Accessibility: Enabling Everyone to Play](#), IEEE Computer.
Jan. 2013 [Blinded by sun? Let your steering wheel guide you](#), New Scientist.
May 2012 [Robot sensing and smartphones help blind navigate](#), New Scientist.
May 2012 [Navatar system could help the blind navigate indoors](#), Gizmag
July 2011 [Video Games are all Greek to Eelke Folmer](#), Perkins School of the Blind Newsletter.
Dec. 2011 [Putting the 'We' in Wii for Children with Visual Impairments](#), The President's Challenge Newsletter
June 2010 [VI Fit Is Wii Sports For The Blind](#). Kotaku.
June 2010 [Video Game to Get Blind Children Moving and Laughing](#) Smarter Technology.
May 2010 [Putting the 'we' in Wii for blind gamers](#). CNET.
May 2010 [Being Blind doesn't mean you can't play videogames](#). Games Radar.
Nov. 2008 [Hacks Allowing Disabled Gamers To Play Guitar Hero](#). SlashDot.
Nov. 2008 [Frets on Fire for the Blind](#). Kotaku.
June 2008 [Guitar Hero for the Blind](#). Wired.

INVITED TALKS

Mar. 2014 [Augmenting the Capabilities of Blind Users using Wearable Computing](#), Seminar, UC Berkeley, USA.
Jan. 2014 [Indoor Navigation for Blind Users](#), Tech Talk, Google, Mountain View, USA.
Jan. 2014 [Game Accessibility](#), Seminar, EA games, Sacramento, USA.
Dec. 2013 [Playing Games without Visual Feedback](#), Games Talk, ExertionLab, Melbourne, Australia.
Dec. 2013 [Exercise games for Blind Kids](#), Accessible Sports Festival, Melbourne, Australia.
Oct. 2013 [Game Accessibility](#), Seminar, Hanze Hogeschool, Groningen, Netherlands.
July 2013 [Augmenting Perception Capabilities of Blind Users](#), ESTVI Workshop, Smith-Kettlewell.
June 2013 [Real-Time Energy Expenditure Prediction for Exergames](#), Games 4 Health Conference, Boston
May 2013 [Playing Games without Visual Feedback](#), Inventing the Future of Games: Speaker Series, UC Santa Cruz
Nov. 2011 [Game Interfaces for Users with Visual Impairments](#), Research Colloquium, DePaul University.
Jan. 2011 [Tactile/Audio Active Play Games for Blind Children](#) Nintendo's Power of Play Symposium, San Francisco.

TEACHING

CS135 Computer Science I	Fall 2006, Spring 2007
CS281 Intro to Game Development	Fall 2007-11, Spring 2007-09
CS320 Interaction Design	Spring 2012-13
CS330 Design Patterns	Fall 2010-12,14
CS328 Fundamentals of Game Design	Fall 14, 15
CS426 Capstone Senior Projects	Spring 2010,15
CS457 Databases	Spring 2013
CS480 Computer Graphics	Spring 2006-07
CS709 Topics in CS: Software Architecture Design	Fall 2008
CS791 Topics in HCI: Player-Game Interaction	Spring 2010-11,15

THESES SUPERVISED

Dec. 2014 Ilias Apostolopoulos, **PHD**. An Indoor Navigation System for Blind Users. (Scientific Games)
Aug 2014 Halim Çağrı Ateş, **MS**. Immersive Simulation of Visual Impairments. (Apple)
May.2014 Alexander Fiannaca, **MS**. Augm. Percep. Cap. of Blind Users using Wearable Computing. (UW Ph.D)
May 2013 Miran Kim, **MS**. Non-Intrusive Physical Activity Prediction for Exergames. (UNR Ph.D.)
May 2013 Burkay Sucu, **MS**. A Haptic Steering Interface. (PC-Doctor)
Dec. 2012 Vinitha Khambadkar, **MS**. A Gestural UI for Remote Nonvisual Spatial Perception. (HP)
Dec. 2011 Tony Morelli, **PHD**. Non-Visual Natural User Interfaces. (Assistant Professor at Central Michigan U.)
Aug.2011 Buğra Oktay, **MS**. Efficient Exploration of Second Life using a Natural Language Interface. (Microsoft)
Aug.2011 Navid Fallah, **PHD**. Mixed Reality Navigation System for Users with Visual Impairments. (Amazon)

May 2011 Austin Wester, **MS**. Unsupervised Game Interface Evaluation. (IGT)
 May 2011 Daniel Ramos, **MS**. Playing A Game With Supplemental Modalities. (IGT)
 Aug. 2009 Manjari Sapre, **MS**. Making Virtual Worlds accessible to Visually Impaired. (Scientific Games)
 May 2009 Dave Carr, **MS**. Towards Automatic Parallel Game Engine Architectures. (Google)
 May 2009 Bei Yuan, **PHD**. Towards Generalized Accessibility of Video Games for Visually Impaired. (Apple)
 May 2008 Chris Franklin, **MS**. Less is More! less Interaction, more Accessible. (Northrop Grumman)

CURRENT STUDENTS

May 2017 Bill Grussenmeijer, **PHD**. Nonvisual access to Touchscreens. (NSF Graduate Fellowship)
 Jan 2016 Rohit Patil, **PHD**. An automated approach to create Accessible Maps from GIS maps
 May 2016 Sam Tregillus, **MS**. Virtual Locomotion for Mobile VR
 Dec 2016 Manju Palathingal, **MS**. TBA.
 Jan 2017 Majed Al-Zayer, **PHD**. VR input using Acoustic Sensing.
 May 2017 Jiwan Bhandari, **MS**. TBA.

PROFESSIONAL SERVICE

Panelist	National Science Foundation 2007, 2012, 2015.
Program Committee	ACM SIGACCESS Conference on Computers and Accessibility (ASSETS), 2012-15 ACM Tangible Embodied Interaction (TEI), 2014 ACM Human Factors in Computing Systems (CHI), 2016
Workshop Organizer	Workshop on Game Accessibility: Xtreme Interaction Design (GAXID) @FDG, 2011 Games and Software Engineering Workshop (GAS) @ICSE, 2011 ACM Conference on Computers and Accessibility (ASSETS), 2013 (Doctoral Consortium) ACM Conference on Computer and Accessibility (ASSETS), 2014 (Student research competition)
Reviewer	ACM SIGACCESS Conference on Computers and Accessibility (ASSETS), 2012-15 ACM Human Factors in Computing Systems (CHI) 2008-15 ACM User Interface Software and Technology (UIST) 2012-13 ACM International Conference on Intelligent User Interfaces (IUI) 2013, 2015 Graphics Interface (GI), 2011-13 Int. Conference on Tangible, Embedded and Embodied Interaction (TEI), 2011-12, 2014 Interactive Tabletops and Surfaces (ITS), 2012 IEEE HAPTICS Symposium, 2011-12, 2016 Foundations and Trends in Human Computer Interaction, 2015 ACM Transactions on Accessible Computing, 2015 Interacting with Computers, 2011, 2013 Journal of Computer Games Technology, 2011 Pervasive and Ubiquitous Computing, 2011 Journal of Systems and Software, 2006, 2009, 2010 IEEE Software, 2006
UNR Service	Graduate Committee, 2008-09, 2014-16 Undergraduate Committee, 2009-12 Faculty search, 2013, 2016 Games and Simulations Curriculum Committee, 2006-Current Faculty Evaluation Committee, 2009-11, 2016 CSE Website Committee, 2010-13 AD-hoc space Committee, 2014-15 IGT Spring Symposium Committee 2007-10