Universiteit Leiden
The Netherlands

Arguably augmented reality : relationships between the virtual and the real

Schraffenberger, H.K.

Citation
Schraffenberger, H. K. (2018, November 29). *Arguably augmented reality : relationships between the virtual and the real*. Retrieved from https://hdl.handle.net/1887/67292

Version:	Not Applicable (or Unknown)
License:	Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden
Downloaded from:	https://hdl.handle.net/1887/67292

Note: To cite this publication please use the final published version (if applicable).

Cover Page

Universiteit Leiden

Leiden University Repository

The handle http://hdl.handle.net/1887/67292 holds various files of this Leiden University dissertation.

Author: Shraffenberger, H.K.
Title: Arguably augmented reality : relationships between the virtual and the real
Issue Date: 2018-11-29

References

Addlesee, M., Curwen, R., Hodges, S., Newman, J., Steggles, P., Ward, A., and Hopper, A. (2001). "Implementing a sentient computing system". *Computer*, 34(8), pp. 50–56 (cited on p. 124).

Agusanto, K., Li, L., Chuangui, Z., and Sing, N. W. (2003). "Photorealistic Rendering for Augmented Reality Using Environment Illumination". In: *Proceedings of the 2nd IEEE/ACM International Symposium on Mixed and Augmented Reality (ISMAR '03)*. Washington, DC, USA: IEEE Computer Society, pp. 208–216 (cited on p. 134).

Akamatsu, M. (2014). *aka.leapmotion (Version 0.21)*. Max external. Creative Commons Attribution 3.0 Unported License. URL: http://akamatsu.org/aka/max/objects/ (cited on p. 176).

Akman, O. (2012). "Robust augmented reality". PhD thesis. Delft University of Technology (cited on p. 91).

Alliban, J. (n.d.). Online; accessed November 1, 2018. URL: https://jamesalliban.wordpress.com/2011/03/30/konstruct-ar-iphone-app/ (cited on pp. 152, 154).

Antle, A. N., Marshall, P., and van den Hoven, E. (2011). "Embodied Interaction: Theory and Practice in Human-Computer Interaction". In: *Workshop Proceedings CHI 2011*. ACM, pp. 8–12 (cited on p. 189).

Aoki, T., Matsushita, T., Iio, Y., Mitake, H., Toyama, T., Hasegawa, S., Ayukawa, R., Ichikawa, H., Sato, M., Kuriyama, T., et al. (2005). "Kobito: virtual brownies." In: *Siggraph Emerging Technologies*, p. 11 (cited on pp. 146, 154).

ARToolKit SDK (1999). Computer Software. v5.3.2. URL: https://artoolkit.org/download-artoolkit-sdk (cited on p. 43).

Augmented Reality (2005). Oxford English Dictionary (cited on pp. 23, 31, 37, 57).

Augmented reality (n.d.). *Augmented reality—Wikipedia, The Free Encyclopedia*. Online; accessed October 18, 2017. URL: https://en.wikipedia.org/wiki/Augmented_reality (cited on pp. 24, 29).

Auvray, M., Hanneton, S., and O'Regan, J. K. (2007). "Learning to perceive with a visuo—auditory substitution system: localisation and object recognition with 'The Voice'". *Perception*, 36(3), pp. 416–430 (cited on p. 114).

Azuma, R. (1997). "A Survey of Augmented Reality". *Presence*, 6(4), pp. 355–385 (cited on pp. 9, 19, 22, 25, 26, 28, 29, 34, 39–42, 45, 46, 51, 59, 79, 104, 115, 141, 188).

Azuma, R., Baillot, Y., Behringer, R., Feiner, S., Julier, S., and MacIntyre, B. (2001). "Recent advances in augmented reality". *Computer Graphics and Applications, IEEE*, 21(6), pp. 34–47 (cited on pp. 20, 22, 25, 27, 41, 42, 51, 67, 68, 99, 148).

Bach-y-Rita, P. and Kercel, S. W. (2003). "Sensory substitution and the human–machine interface". *Trends*

in cognitive sciences, 7(12), pp. 541–546 (cited on p. 114).

Bajura, M., Fuchs, H., and Ohbuchi, R. (1992). "Merging virtual objects with the real world: Seeing ultrasound imagery within the patient". In: *ACM SIGGRAPH Computer Graphics*. Vol. 26. 2. ACM, pp. 203–210 (cited on pp. 91, 150).

Bajura, M. and Neumann, U. (1995). "Dynamic registration correction in video-based augmented reality systems". *IEEE Computer Graphics and Applications*, 15(5), pp. 52–60 (cited on pp. 41, 42).

Bandyopadhyay, D., Raskar, R., and Fuchs, H. (2001). "Dynamic shader lamps: Painting on movable objects". In: *Proceedings of the IEEE and ACM International Symposium on Augmented Reality*. IEEE, pp. 207–216 (cited on p. 81).

Bane, R. and Hollerer, T. (2004). "Interactive tools for virtual x-ray vision in mobile augmented reality". In: *Proceedings of the Third IEEE and ACM International Symposium on Mixed and Augmented Reality (ISMAR 2004)*. IEEE, pp. 231–239 (cited on pp. 115, 150).

Barakonyi, I., Psik, T., and Schmalstieg, D. (2004). "Agents that talk and hit back: animated agents in augmented reality". In: *Proceedings of the third IEEE and ACM International Symposium on Mixed and Augmented Reality (ISMAR 2004)*. IEEE, pp. 141–150 (cited on pp. 125, 161).

Bau, O. and Poupyrev, I. (2012). "REVEL: tactile feedback technology for augmented reality". *ACM Transactions on Graphics (TOG)*, 31(4), p. 89 (cited on pp. 4, 31, 60, 105, 108, 148, 149, 169).

Bauer, C. and Waldner, F. (2013). "Reactive music: when user behavior affects sounds in real-time". In: *Extended Abstracts on Human Factors in Computing Systems (CHI'13)*. ACM, pp. 739–744 (cited on p. 103).

Bederson, B. B. (1995). "Audio augmented reality: a prototype automated tour guide". In: *Conference companion on Human factors in computing systems*. ACM, pp. 210–211 (cited on pp. 4, 31, 52, 79).

Bellamy, C. and 6, P. (2012). *Principles of methodology: Research design in social science*. Sage (cited on p. 77).

Benko, H., Wilson, A. D., and Zannier, F. (2014). "Dyadic projected spatial augmented reality". In: *Proceedings of the 27th annual ACM symposium on User interface software and technology*. ACM, pp. 645–655 (cited on pp. 45, 92).

Bennett, C. A. and Rey, P. (1972). "What's so hot about red?" *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 14(2), pp. 149–154 (cited on p. 110).

Berry, P. C. (1961). "Effect of colored illumination upon perceived temperature." *Journal of Applied Psychology*, 45(4), pp. 248–250 (cited on p. 110).

Bertelson, P. and De Gelder, B. (2004). "The psychology of multimodal perception". *Crossmodal space and crossmodal attention*, pp. 141–177 (cited on p. 112).

Bianchi, G., Knoerlein, B., Szekely, G., and Harders, M. (2006). "High precision augmented reality haptics". In: *Proceedings EuroHaptics*. Vol. 6. Citeseer, pp. 169–178 (cited on pp. 5, 61, 97).

Billinghurst, M. (2001). "Crossing the chasm". In: *International Conference on Augmented Tele-Existence (ICAT 2001)*. Citeseer, pp. 5–7 (cited on pp. 149, 169).

Billinghurst, M., Clark, A., and Lee, G. (2015). "A survey of augmented reality". *Foundations and Trends in Human-Computer Interaction*, 8(2-3), pp. 73–272 (cited on p. 40).

Billinghurst, M., Grasset, R., Seichter, H., and Dünser, A. (2009). "Towards ambient augmented reality with tangible interfaces". *Human-Computer Interaction. Ambient, Ubiquitous and Intelligent Interaction*, pp. 387–396 (cited on p. 149).

Billinghurst, M., Kato, H., and Myojin, S. (2009). "Advanced interaction techniques for augmented reality applications". *Virtual and Mixed Reality*, pp. 13–22 (cited on pp. 151, 152, 154).

Billinghurst, M., Kato, H., and Poupyrev, I. (2001). "The MagicBook - Moving Seamlessly between Reality and Virtuality". *IEEE Computer Graphics and Applications*, 21(3), pp. 6–8 (cited on p. 4).
– (2008). "Tangible augmented reality". In: *ACM SIGGRAPH ASIA 2008 courses*. ACM, pp. 1–10 (cited on pp. 78, 149, 169).

Bimber, O., Encamacao, L., and Schmalstieg, D. (2000). "Real mirrors reflecting virtual worlds". In: *Proceedings IEEE Virtual Reality 2000*. IEEE, pp. 21–28 (cited on p. 119).

Bimber, O. and Raskar, R. (2005). *Spatial Augmented Reality: Merging Real and Virtual Worlds*. Natick, MA, USA: A. K. Peters, Ltd. (cited on pp. 23, 41, 45, 51, 92).

Biocca, F., Kim, J., and Choi, Y. (2001). "Visual Touch in Virtual Environments: An Exploratory Study of Presence, Multimodal Interfaces, and Cross-Modal Sensory Illusions". *Presence: Teleoperators and Virtual Environments*, 10(3), pp. 247–265 (cited on p. 192).

Blum, J. R., Greencorn, D. G., and Cooperstock, J. R. (2012). "Smartphone sensor reliability for augmented reality applications". In: *Mobile and Ubiquitous Systems: Computing, Networking, and Services*. Springer, pp. 127–138 (cited on p. 44).

Bondo, J., Barnard, D., Burcaw, D., Novikoff, T., Kemper, C., Parrish, C., Peters, K., Siebert, J., Wilson, E., Wilson, B., et al. (2010). *iPhone User Interface Design Projects*. Apress (cited on p. 103).

Breen, D. E., Whitaker, R. T., Rose, E., and Tuceryan, M. (1996). "Interactive occlusion and automatic object placement for augmented reality". In: *Computer Graphics Forum*. Vol. 15. 3. Wiley Online Library, pp. 11–22 (cited on pp. 55, 83, 118, 142, 143).

Broll, W., Lindt, I., Ohlenburg, J., Wittkämper, M., Yuan, C., Novotny, T., Mottram, C., Fatah gen Schieck, A., and Strothman, A. (2004). "Arthur: A collaborative augmented environment for architectural design and urban planning" (cited on p. 118).

Brown, L. G. (1992). "A survey of image registration techniques". *ACM computing surveys (CSUR)*, 24(4), pp. 325–376 (cited on p. 21).

Buchmann, V., Violich, S., Billinghurst, M., and Cockburn, A. (2004). "FingARtips: Gesture Based Direct Manipulation in Augmented Reality". In: *Proceedings of the 2nd International Conference on Computer Graphics and Interactive Techniques in Australasia and South East Asia (GRAPHITE '04)*. Singapore: ACM, pp. 212–221 (cited on p. 40).

Bujas, Z. (1971). "Electrical taste". In: *Taste*. Springer, pp. 180–199 (cited on pp. 60, 96, 108).

Caarls, J. (2009). "Pose estimation for mobile devices and augmented reality". PhD thesis. Delft University of Technology (cited on p. 44).

Cardiff, J. (n.d.). *Introduction to the audio walks*. Online; accessed November 7, 2014. URL: http://www.cardiffmiller.com/artworks/walks/audio_walk.html (cited on pp. 34, 47, 48, 51, 127, 178, 198).
– (1991). *Forest Walk*. Audio walk. Online; accessed November 7, 2014. URL: http://www.cardiffmiller.com/artworks/walks/forest.html (cited on pp. 34, 47, 48, 60, 198).

Carroll, J. and Polo, F. (2013). "Augmented Reality Gaming with Sphero". In: *ACM SIGGRAPH 2013 Mobile*. Anaheim, California: ACM, p. 17 (cited on pp. 147, 159).

Carroll, L. (2015). *Alice's adventures in wonderland*. Macmillan Children's Books (cited on p. 213).

Cassell, J., Bickmore, T., Campbell, L., Vilhjálmsson, H., and Yan, H. (2000). "Conversation as a system framework: Designing embodied conversational agents". *Embodied conversational agents*, pp. 29–63 (cited on p. 142).

Caudell, T. and Mizell, D. (1992). "Augmented reality: an application of heads-up display technology to manual manufacturing processes". In: *Proceedings of the Twenty-Fifth Hawaii International Conference on System Sciences*. Vol. 2. IEEE, pp. 659–669 (cited on pp. 3, 4, 30, 34, 57, 58, 80, 86, 90).

Chae, C. and Ko, K. (2008). "Introduction of Physics Simulation in Augmented Reality". In: *Proceedings of the 2008 International Symposium on Ubiquitous Virtual Reality (ISUVR '08)*. Washington, DC, USA: IEEE Computer Society, pp. 37–40 (cited on pp. 118, 145, 153, 156, 173).

Chan, L.-W., Kao, H.-S., Chen, M. Y., Lee, M.-S., Hsu, J., and Hung, Y.-P. (2010). "Touching the Void: Direct-touch Interaction for Intangible Displays". In: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '10)*. Atlanta, Georgia, USA: ACM, pp. 2625–2634. URL: http://doi.acm.org/10.1145/1753326.1753725 (cited on p. 190).

Chatzidimitris, T., Gavalas, D., and Michael, D. (2016). "SoundPacman: Audio augmented reality in location-based games". In: *2016 18th Mediterranean Electrotechnical Conference (MELECON)*. IEEE, pp. 1–6 (cited on pp. 45, 60, 65, 80, 84, 92, 93, 102, 123, 188).

Chien, C.-H., Chen, C.-H., and Jeng, T.-S. (2010). "An interactive augmented reality system for learning anatomy structure". In: *Proceedings of the International MultiConference of Engineers and Computer Scientists, IMECS 2010*, pp. 17–19 (cited on p. 3).

Cook, P. R. (2002). *Real sound synthesis for interactive applications*. CRC Press (cited on p. 157).

Corbett-Davies, S., Dünser, A., and Clark, A. (2012). "An interactive augmented reality system for exposure treatment". In: *Proceedings of the IEEE International Symposium on Mixed and Augmented Reality (ISMAR-AMH 2012)*. IEEE, pp. 95–96 (cited on pp. 91, 101, 102, 118, 148).

Corbett-Davies, S., Dünser, A., Green, R., and Clark, A. (2013). "An advanced interaction framework for augmented reality based exposure treatment". In: *Proceedings IEEE Virtual Reality 2013*. IEEE, pp. 19–22 (cited on pp. 148, 154, 173).

Craig, A. B. (2013). *Understanding Augmented Reality: Concepts and Applications*. Newnes (cited on pp. 22, 24–26, 29, 41, 43, 45, 59, 67, 68, 148).

Cui, Y. and Ge, S. S. (2003). "Autonomous vehicle positioning with GPS in urban canyon environments". *IEEE transactions on robotics and automation*, 19(1), pp. 15–25 (cited on p. 44).

Dialectical research (n.d.). *Dialectical research—Wikipedia, The Free Encyclopedia*. Online; accessed November 1, 2018. URL: https://en.wikipedia.org/wiki/Dialectical_research (cited on p. 10).

Dourish, P. (2004). *Where the action is: the foundations of embodied interaction*. MIT press (cited on p. 189).

Doyle, S., Dodge, M., and Smith, A. (1998). "The potential of web-based mapping and virtual reality technologies for modelling urban environments". *Computers, Environment and Urban Systems*, 22(2), pp. 137–155 (cited on pp. 20, 24).

Drascic, D. and Milgram, P. (1996). "Perceptual issues in augmented reality". In: *Electronic Imaging: Science & Technology*. International Society for Optics and Photonics, pp. 123–134 (cited on p. 41).

Drettakis, G., Robert, L., and Bougnoux, S. (1997). "Interactive common illumination for computer

augmented reality". In: *Rendering Techniques '97*. Springer, pp. 45–56 (cited on p. 54).

Eckel, G. (2001). "Immersive audio-augmented environments: the LISTEN project". In: *Proceedings of the 5th International Conference on Information Visualization (IV2001)*. IEEE, pp. 571–573 (cited on p. 93).

Engadget (2016). URL: https://www.engadget.com/2016/03/14/samsung-entrim-4d-vr-motion-headphones/ (cited on p. 110).

Erens, C. (n.d.). *The Audible Space*. Online; accessed November 7, 2014. URL: http://www.cilia-erens.nl/cilia-erens-2/?lang=en (cited on pp. 34, 188).

Ernst, M. O. and Bülthoff, H. H. (2004). "Merging the senses into a robust percept". *Trends in cognitive sciences*, 8(4), pp. 162–169 (cited on p. 61).

Fanger, P., Breum, N., and Jerking, E. (1977). "Can colour and noise influence man's thermal comfort?" *Ergonomics*, 20(1), pp. 11–18 (cited on p. 110).

Feiner, S., MacIntyre, B., Höllerer, T., and Webster, A. (1997). "A touring machine: Prototyping 3D mobile augmented reality systems for exploring the urban environment". *Personal Technologies*, 1(4), pp. 208–217 (cited on p. 85).

Feiner, S., Macintyre, B., and Seligmann, D. (1993). "Knowledge-based augmented reality". *Communications of the ACM*, 36(7), pp. 53–62 (cited on pp. 4, 44, 58, 86, 90, 116).

Féral, J. (2012). *How to define presence effects: the work of Janet Cardiff*. Ed. by G. Giannachi, N. Kaye, and M. Shanks. Routledge, pp. 29–49 (cited on p. 188).

Fischer, J., Bartz, D., and Straber, W. (2005). "Stylized augmented reality for improved immersion". In: *Proceedings IEEE Virtual Reality 2005*. IEEE, pp. 195–202 (cited on pp. 103, 127).

Fujihata, M. (1995). *Beyond Pages*. Interactive installation (cited on p. 146).

Gelenbe, E., Hussain, K., and Kaptan, V. (2005). "Simulating autonomous agents in augmented reality". *Journal of Systems and Software*, 74(3), pp. 255–268 (cited on p. 125).

Gibson, S. and Chalmers, A. (2003). "Photorealistic augmented reality". In: *Eurographics 2003 Tutorial*. Granada, Spain (cited on pp. 134, 173).

Gómez-Maureira, M. A., Teunisse, C., Schraffenberger, H., and Verbeek, F. (2014). "Illuminating Shadows: Introducing Shadow Interaction in Spatial Augmented Reality". In: *Creating the Difference: Proceedings of the Chi Sparks 2014 Conference*, pp. 11–18 (cited on pp. 81, 82).

Gradman, E. (2010). *Cloud Mirror*. Interactive art installation. Online; accessed November 7, 2014. URL: http://www.gradman.com/cloudmirror (cited on pp. 86, 87).

Graham, M., Zook, M., and Boulton, A. (2013). "Augmented reality in urban places: contested content and the duplicity of code". *Transactions of the Institute of British Geographers*, 38(3), pp. 464–479 (cited on p. 24).

Hafidh, B., Osman, H. A., Alowaidi, M., El-Saddik, A., and Liu, X. P. (2013). "F-Glove: A glove with force-audio sensory substitution system for diabetic patients". In: *Proceedings IEEE International Symposium on Haptic Audio Visual Environments and Games (HAVE 2013)*. Washington, DC, USA: IEEE Computer Society, pp. 34–38 (cited on p. 192).

Hampshire, A., Seichter, H., Grasset, R., and Billinghurst, M. (2006). "Augmented Reality Authoring: Generic Context from Programmer to Designer". In: *Proceedings of the 18th Australia Conference on Computer-Human Interaction: Design: Activities, Artefacts and Environments (OZCHI '06)*. Sydney, Australia:

ACM, pp. 409–412 (cited on p. 73).

Han, J. and Gold, N. (2014). "Lessons Learned in Exploring the Leap Motion™ Sensor for Gesture-based Instrument Design". In: *New Interfaces for Musical Expression 2014*. Goldsmiths University of London, pp. 371–374 (cited on p. 185).

Hashimoto, Y., Nagaya, N., Kojima, M., Miyajima, S., Ohtaki, J., Yamamoto, A., Mitani, T., and Inami, M. (2006). "Straw-like user interface: virtual experience of the sensation of drinking using a straw". In: *Proceedings of the 2006 ACM SIGCHI international conference on Advances in computer entertainment technology*. ACM, p. 50 (cited on p. 101).

Hassenzahl, M. and Tractinsky, N. (2006). "User experience-a research agenda". *Behaviour & information technology*, 25(2), pp. 91–97 (cited on p. 11).

Heller, F. and Borchers, J. (2011). "Corona: Audio augmented reality in historic sites". In: *Proceedings 1st Workshop on Mobile AR, MobileHCI, Sweden* (cited on pp. 92, 93).

Herling, J. and Broll, W. (2010). "Advanced self-contained object removal for realizing real-time diminished reality in unconstrained environments". In: *Proceedings of the 9th IEEE International Symposium on Mixed and Augmented Reality (ISMAR 2010)*. IEEE, pp. 207–212 (cited on pp. 27, 81, 99, 100).

– (2011). "Markerless Tracking for Augmented Reality". In: *Handbook of Augmented Reality*. Ed. by B. Furht. New York, NY: Springer New York, pp. 255–272. URL: http://dx.doi.org/10.1007/978-1-4614-0064-6_11 (cited on p. 26).

Hirano, Y., Kimura, A., Shibata, F., and Tamura, H. (2011). "Psychophysical influence of mixed-reality visual stimulation on sense of hardness". In: *Proceedings IEEE Virtual Reality 2011*. IEEE, pp. 51–54 (cited on pp. 62, 105, 112).

history and archive - Stedelijk Museum Amsterdam (n.d.). URL: http://www.stedelijk.nl/en/artours/history-and-archive (visited on 01/22/2017) (cited on pp. 53, 87).

Ho, H.-N., Iwai, D., Yoshikawa, Y., Watanabe, J., and Nishida, S. (2014). "Combining colour and temperature: A blue object is more likely to be judged as warm than a red object". *Scientific reports*, 4, p. 5527 (cited on pp. 62, 105, 112).

Höllerer, T. and Feiner, S. (2004). "Mobile augmented reality". *Telegeoinformatics: Location-Based Computing and Services* (cited on p. 79).

Hopper, A. (1999). "The Royal Society Clifford Paterson Lecture". *Sentient Computing. AT&T Lab Cambridge Technical Report 1999.12, 1999*, pp. 1–10 (cited on p. 124).

Hoshi, T., Takahashi, M., Iwamoto, T., and Shinoda, H. (2010). "Noncontact tactile display based on radiation pressure of airborne ultrasound". *IEEE Transactions on Haptics*, 3(3), pp. 155–165 (cited on p. 94).

Hoshi, T., Takahashi, M., Nakatsuma, K., and Shinoda, H. (2009). "Touchable holography". In: *ACM SIGGRAPH 2009 Emerging Technologies*. ACM, p. 23 (cited on pp. 94, 95).

Hötting, K. and Röder, B. (2004). "Hearing cheats touch, but less in congenitally blind than in sighted individuals". *Psychological Science*, 15(1), pp. 60–64 (cited on p. 192).

Hugues, O., Fuchs, P., and Nannipieri, O. (2011). "New Augmented Reality Taxonomy: Technologies and Features of Augmented Environment". In: *Handbook of Augmented Reality*. Ed. by B. Furht. Springer New York, pp. 47–63 (cited on p. 59).

Hürst, W. and Van Wezel, C. (2013). "Gesture-based interaction via finger tracking for mobile augmented reality". *Multimedia Tools and Applications*, 62(1), pp. 233–258 (cited on pp. 152, 154).

Huzaifah Bhutto (2012). *Google Glasses Project*. YouTube video. Online; accessed January 8, 2016. URL: https://www.youtube.com/watch?v=JSnB06um5r4 (cited on p. 46).

Hwang, A. (2006). *Albert Hwang*. YouTube channel. Online; accessed November 7, 2014. URL: https://www.youtube.com/user/phedhex (cited on p. 133).
– (2012). *How to Dance Liquid: Rails*. Video. Online; accessed November 7, 2014. URL: http://youtu.be/Wwxwc_2vDKQ?t=7m50s (cited on p. 134).

Iesaki, A., Somada, A., Kimura, A., Shibata, F., and Tamura, H. (2008). "Psychophysical influence on tactual impression by mixed-reality visual stimulation". In: *Proceedings IEEE Virtual Reality 2008*. IEEE, pp. 265–266 (cited on pp. 62, 106, 112).

IKEA Place (2017). Mobile application software. Version 1.13. URL: https://itunes.apple.com/us/app/ikea-place/id1279244498 (cited on p. 40).

Inception - The App (2016). Mobile application software. Version 2.0. URL: https://www.inception-app.com (cited on pp. 33, 103).

Irawati, S., Green, S., Billinghurst, M., Duenser, A., and Ko, H. (2006). "" Move the couch where?": developing an augmented reality multimodal interface". In: *IEEE and ACM International Symposium on Mixed and Augmented Reality (ISMAR 2006)*. IEEE, pp. 183–186 (cited on p. 78).

iReport, C. (2010). URL: http://ireport.cnn.com/docs/DOC-491232 (visited on 03/15/2017) (cited on p. 115).

ISMAR2015 (n.d.). URL: http://ismar2015.vgtc.org/ismar/2015/info/call-participation/call-fullshort-papers/ (cited on p. 27).

Iwamoto, T., Tatezono, M., Hoshi, T., and Shinoda, H. (2008). "Airborne ultrasound tactile display". In: *ACM SIGGRAPH 2008 new tech demos*. ACM, p. 1 (cited on p. 94).

Jacobs, L. F., Arter, J., Cook, A., and Sulloway, F. J. (2015). "Olfactory orientation and navigation in humans". *PloS one*, 10(6), e0129387 (cited on p. 95).

Jonietz, E. (2010). *Augmented Identity*. URL: https://www.technologyreview.com/s/417655/augmented-identity/ (cited on p. 86).

Jousmäki, V. and Hari, R. (1998). "Parchment-skin illusion: sound-biased touch". *Current Biology*, 8(6), R190–R191 (cited on pp. 62, 191).

Kaczmarek, K. A. (1995). "Sensory augmentation and substitution". *CRC handbook of biomedical engineering*, pp. 2100–2109 (cited on p. 114).

Kalkofen, D., Tatzgern, M., and Schmalstieg, D. (2009). "Explosion diagrams in augmented reality". In: *Proceedings IEEE Virtual Reality 2009*. IEEE, pp. 71–78 (cited on p. 150).

Kán, P. and Kaufmann, H. (2012). "High-quality reflections, refractions, and caustics in augmented reality and their contribution to visual coherence". In: *International Symposium on Mixed and Augmented Reality (ISMAR 2012)*. IEEE, pp. 99–108 (cited on pp. 117, 144).

Kanbara, M. and Yokoya, N. (2004). "Real-time estimation of light source environment for photorealistic augmented reality". In: *Proceedings of the 17th International Conference on Pattern Recognition (ICPR 2004)*.

Vol. 2, pp. 911–914 (cited on pp. 134, 144).

Kang, C. and Woo, W. (2011). "ARMate: An Interactive AR Character Responding to Real Objects". In: *Proceedings of the 6th International Conference on E-learning and Games, Edutainment Technologies (Edutainment'11)*. Taipei, Taiwan: Springer-Verlag, pp. 12–19 (cited on pp. 120, 124, 146, 154, 155).

Kaspar, K., König, S., Schwandt, J., and König, P. (2014). "The experience of new sensorimotor contingencies by sensory augmentation". *Consciousness and cognition*, 28, pp. 47–63 (cited on pp. 114, 115).

Kato, H., Billinghurst, M., Poupyrev, I., Imamoto, K., and Tachibana, K. (2000). "Virtual object manipulation on a table-top AR environment". In: *Proceedings of the IEEE and ACM International Symposium on Augmented Reality (ISAR 2000)*. Ieee, pp. 111–119 (cited on pp. 150–152).

Kawashima, T., Imamoto, K., Kato, H., Tachibana, K., and Billinghurst, M. (2001). "Magic paddle: A tangible augmented reality interface for object manipulation". In: *Proceedings on ISMR2001*, pp. 194–195 (cited on p. 152).

Kim, M. and Cheeyong, K. (2015). "Augmented reality fashion apparel simulation using a magic mirror". *International journal of smart home*, 9(2), pp. 169–178 (cited on p. 151).

Kim, S., Kim, Y., and Lee, S.-H. (2011). "On Visual Artifacts of Physics Simulation in Augmented Reality Environment". In: *Proceedings of the 2011 International Symposium on Ubiquitous Virtual Reality (ISUVR '11)*. Washington, DC, USA: IEEE Computer Society, pp. 25–28 (cited on pp. 26, 55, 119, 134, 138, 143, 145, 153, 154, 156, 158, 167, 170, 173).

Klopfer, E. and Squire, K. (2008). "Environmental Detectives—the development of an augmented reality platform for environmental simulations". *Educational Technology Research and Development*, 56(2), pp. 203–228. URL: http://dx.doi.org/10.1007/s11423-007-9037-6 (cited on pp. 24, 27, 30, 68).

Knoerlein, B., Székely, G., and Harders, M. (2007). "Visuo-haptic collaborative augmented reality ping-pong". In: *Proceedings of the international conference on Advances in computer entertainment technology*. ACM, pp. 91–94 (cited on p. 97).

Köster, E. P. (2002). "The specific characteristics of the sense of smell". *Olfaction, taste and cognition*, pp. 27–43 (cited on p. 95).

Kounavis, C. D., Kasimati, A. E., and Zamani, E. D. (2012). "Enhancing the tourism experience through mobile augmented reality: Challenges and prospects". *International Journal of Engineering Business Management*, 4 (cited on p. 26).

Kunst und Medientechnologie Karlsruhe, Z. für (n.d.). URL: http://on1.zkm.de/zkm/werke/BeyondPages (cited on p. 146).

Lamers, M. H. (2013). "Pre-digital Augmented Reality". *AR[t], Augmented Reality, Art and Technology*, 3. Ed. by H. Schraffenberger, M. Kniveton, Y. Kolstee, and J. Verlinden, pp. 24–25. URL: http://arlab.kabk.nl/ar-magazines (cited on pp. 26, 134, 199).

Lawless, H. T., Stevens, D. A., Chapman, K. W., and Kurtz, A. (2005). "Metallic Taste from Electrical and Chemical Stimulation". *Chemical Senses*, 30(3), p. 185. URL: +%20http://dx.doi.org/10.1093/chemse/bji014 (cited on p. 96).

Layar (2009). Mobile application software. URL: http://www.layar.com (cited on pp. 3, 85).

Lederman, S. J. and Klatzky, R. L. (1987). "Hand movements: A window into haptic object recognition". *Cognitive Psychology*, 19(3), pp. 342–368 (cited on pp. 184, 191).

– (2009). "Haptic perception: A tutorial". *Attention, Perception, & Psychophysics*, 71(7), pp. 1439–1459 (cited on p. 191).

Lee, K. (2012). "Augmented Reality in Education and Training". *TechTrends*, 56(2), pp. 13–21 (cited on p. 3).

Leitch, R. and Tokhi, M. (1987). "Active noise control systems". *IEE Proceedings A-Physical Science, Measurement and Instrumentation, Management and Education-Reviews*, 134(6), pp. 525–546 (cited on p. 100).

Leitner, J., Haller, M., Yun, K., Woo, W., Sugimoto, M., and Inami, M. (2008). "IncreTable, a mixed reality tabletop game experience". In: *Proceedings of the 2008 International Conference on Advances in Computer Entertainment Technology*. ACM, pp. 9–16 (cited on pp. 146, 154, 158).

Liberati, N. and Nagataki, S. (2015). "The AR glasses' "non-neutrality": their knock-on effects on the subject and on the giveness of the object". *Ethics and Information Technology*, 17(2), pp. 125–137 (cited on pp. 53, 54).

Lindeman, R. W., Lee, G., Beattie, L., Gamper, H., Pathinarupothi, R., and Akhilesh, A. (2012). "GeoBoids: A mobile AR application for exergaming". In: *Proceedings of the IEEE International Symposium on Mixed and Augmented Reality (ISMAR-AMH 2012)*. IEEE, pp. 93–94 (cited on pp. 61, 96, 123, 153, 154).

Lindeman, R. W. and Noma, H. (2007). "A classification scheme for multi-sensory augmented reality". In: *Proceedings of the 2007 ACM symposium on Virtual reality software and technology*. ACM, pp. 175–178 (cited on pp. 61, 67, 118, 144).

Lok, B. C. (2004). "Toward the merging of real and virtual spaces". *Communications of the ACM*, 47(8), pp. 48–53 (cited on p. 99).

Looser, J., Grasset, R., Seichter, H., and Billinghurst, M. (2006). "OSGART-A pragmatic approach to MR". in: *Proceedings of the 5th IEEE and ACM International Symposium on Mixed and Augmented Reality (ISMAR 2006)*, pp. 22–25 (cited on p. 73).

López, M. B., Hannuksela, J., Silvén, O., and Vehviläinen, M. (2014). "Interactive multi-frame reconstruction for mobile devices". *Multimedia Tools and Applications*, 69(1), pp. 31–51 (cited on pp. 48, 49).

MacIntyre, B. (2002). "Authoring 3D Mixed Reality Experiences: Managing the Relationship Between the Physical and Virtual Worlds". *Proceedings of the ACM SIGGRAPH and Eurographics Campfire: Production Process of 3D Computer Graphics Applications-Structures, Roles and Tools*, pp. 1–5 (cited on p. 73).

Mackay, W. E. (1996). "Augmenting reality: A new paradigm for interacting with computers". *La recherche*, 284. Online; accessed November 7, 2014, pp. 1–9. URL: http://www-ihm.lri.fr/~mackay/pdffiles/LaRecherche.English.pdf (cited on p. 29).

Madsen, C. B., Jensen, T., and Andersen, M. S. (2006). "Real-time image-based lighting for outdoor augmented reality under dynamically changing illumination conditions". In: *International Conference on Graphics Theory and Applications, GRAPP 2006*, pp. 364–371 (cited on pp. 83, 117, 119, 144, 173).

Maebayashi, A. (1999). *Sonic Interface*. Sound work (cited on pp. 33, 104).

Mann, S. and Fung, J. (2002). "EyeTap devices for augmented, deliberately diminished, or otherwise altered visual perception of rigid planar patches of real-world scenes". *Presence: Teleoperators and Virtual Environments*, 11(2), pp. 158–175 (cited on pp. 81, 82, 100).

Manovich, L. (2001). *The Language of New Media*. Cambridge, MA, USA: The MIT Press (cited on pp. 16, 199).

Manovich, L. (2006). "The poetics of augmented space". *Visual Communication*, 5(2), pp. 219–240 (cited on pp. 16, 21, 27, 29, 67, 68, 73, 79, 198).

Maranan, D. S., Schiphorst, T., Bartram, L., and Hwang, A. (2013). "Expressing Technological Metaphors in Dance Using Structural Illusion from Embodied Motion". In: *Proceedings of the 9th ACM Conference on Creativity & Cognition (C&C '13)*. Sydney, Australia: ACM, pp. 165–174 (cited on pp. 133–135).

Max (2014). Visual programming language. Verison 6.1.9. URL: https://cycling74.com/products/max/ (cited on p. 176).

McGurk, H. and MacDonald, J. (1976). "Hearing lips and seeing voices". *Nature*, 264(5588), pp. 746–748 (cited on p. 62).

Media Technology MSc Programme - Leiden University (n.d.). URL: http://mediatechnology.leiden.edu (cited on pp. 9, 113).

MediaArtTube (2008). URL: https://www.youtube.com/watch?v=6Ek2DW7aV68 (cited on p. 146).

Meijer, P. B. L. (n.d.). *The vOICe - New Frontiers in Sensory Substitution*. URL: https://www.seeingwithsound.com (cited on p. 114).

Microsoft (n.d.). *Microsoft HoloLens*. Online; accessed March 27, 2015. URL: http://www.microsoft.com/microsoft-hololens/ (cited on pp. 3, 40).

Microsoft Research (2014). *Dyadic Projected Spatial Augmented Reality*. YouTube video. Online; accessed January 8, 2016. URL: https://www.youtube.com/watch?v=Df7fZAYVAIE (cited on p. 45).

Milgram, P. and Kishino, F. (1994). "A taxonomy of mixed reality visual displays". *IEICE TRANSACTIONS on Information and Systems*, E77-D(12), pp. 1321–1329 (cited on pp. 19, 21, 24–26, 28–30, 68, 102).

Milgram, P., Takemura, H., Utsumi, A., and Kishino, F. (1994). "Augmented reality: a class of displays on the reality-virtuality continuum". *Proceedings of SPIE: Telemanipulator and Telepresence Technologies*, 2351, pp. 282–292 (cited on pp. 19, 28).

Minamizawa, K., Fukamachi, S., Kajimoto, H., Kawakami, N., and Tachi, S. (2007). "Gravity Grabber: Wearable Haptic Display to Present Virtual Mass Sensation". In: *ACM SIGGRAPH 2007 Emerging Technologies (SIGGRAPH '07)*. San Diego, California: ACM (cited on pp. 84, 94, 106, 187).

Minamizawa, K., Kamuro, S., Fukamachi, S., Kawakami, N., and Tachi, S. (2008). "GhostGlove: Haptic existence of the virtual world". In: *ACM SIGGRAPH 2008 new tech demos*. ACM, p. 18 (cited on p. 94).

Møller, H. (1992). "Fundamentals of binaural technology". *Applied Acoustics*, 36(3–4), pp. 171–218 (cited on pp. 48, 178).

Müller, J., Geier, M., Dicke, C., and Spors, S. (2014). "The boomRoom: mid-air direct interaction with virtual sound sources". In: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, pp. 247–256 (cited on p. 190).

Murakami, T., Person, T., Fernando, C. L., and Minamizawa, K. (2017). "Altered touch: miniature haptic display with force, thermal and tactile feedback for augmented haptics". In: *ACM SIGGRAPH 2017 Posters*. ACM, p. 53 (cited on p. 94).

Museum of London: Streetmuseum (2014). Mobile application software. Version 2.03. URL: https://itunes.apple.com/de/app/museum-london-streetmuseum/id369684330?l=en&mt=8 (cited on pp. 4, 127).

Nagel, S. K., Carl, C., Kringe, T., Märtin, R., and König, P. (2005). "Beyond sensory substitution?learning the sixth sense". *Journal of Neural Engineering*, 2(4), R13–R26 (cited on pp. 114, 115).

Nakamura, H. and Miyashita, H. (2011). "Augmented gustation using electricity". In: *Proceedings of the 2nd Augmented Human International Conference*. ACM, p. 34 (cited on pp. 60, 108, 115).

Namee, B. M., Beaney, D., and Dong, Q. (2010). "Motion in augmented reality games: an engine for creating plausible physical interactions in augmented reality games". *International Journal of Computer Games Technology*, 2010, p. 4 (cited on pp. 145, 155).

Narumi, T., Kajinami, T., Tanikawa, T., and Hirose, M. (2010a). "Meta cookie". In: *ACM SIGGRAPH 2010 Posters*. ACM, p. 143 (cited on pp. 5, 112).
– (2010b). "Meta cookie". In: *ACM SIGGRAPH 2010 Posters*. ACM, p. 143 (cited on pp. 63, 64).

Narumi, T., Nishizaka, S., Kajinami, T., Tanikawa, T., and Hirose, M. (2011a). "Augmented reality flavors: gustatory display based on edible marker and cross-modal interaction". In: *Proceedings of the SIGCHI conference on human factors in computing systems*. ACM, pp. 93–102 (cited on pp. 63, 64).
– (2011b). "Meta cookie+: an illusion-based gustatory display". In: *Virtual and Mixed Reality-New Trends*. Springer, pp. 260–269 (cited on pp. 5, 63, 64, 108, 109, 112).

Narumi, T., Sato, M., Tanikawa, T., and Hirose, M. (2010). "Evaluating cross-sensory perception of superimposing virtual color onto real drink: toward realization of pseudo-gustatory displays". In: *Proceedings of the 1st Augmented Human International Conference*. ACM, p. 18 (cited on pp. 108, 112, 130).

Newsroom, S. (2016). URL: https://news.samsung.com/global/samsung-to-unveil-hum-on-waffle-and-entrim-4d-experimental-c-lab-projects-at-sxsw-2016 (visited on 03/03/2017) (cited on p. 110).

Niantic, Inc. (2017). URL: https://support.pokemongo.nianticlabs.com/hc/en-us/articles/115015868188-Catching-Pok%C3%A9mon-in-AR-mode-iOS-only- (cited on pp. 55, 124).

Noë, A. (2004). *Action in perception*. MIT press (cited on p. 189).

Normand, J.-M., Servières, M., and Moreau, G. (2012). "A New Typology of Augmented Reality Applications". In: *Proceedings of the 3rd Augmented Human International Conference (AH '12)*. Megève, France: ACM, 18:1–18:8 (cited on pp. 29, 115).

Ohshima, T., Satoh, K., Yamamoto, H., and Tamura, H. (1998). "AR2Hockey: a case study of collaborative augmented reality". In: *Proceedings IEEE 1998 Virtual Reality Annual International Symposium*. IEEE, pp. 268–275 (cited on pp. 145, 148, 154, 173).

Oliver, J. (2008-2010). *The Artvertiser*. Improved reality software platform. Online; accessed November 7, 2014. URL: http://theartvertiser.com/ (cited on p. 100).

Olsson, T. and Salo, M. (2011). "Online user survey on current mobile augmented reality applications". In: *Proceedings of the IEEE International Symposium on Mixed and Augmented Reality (ISMAR 2011)*. IEEE, pp. 75–84 (cited on p. 3).

Omosako, H., Kimura, A., Shibata, F., and Tamura, H. (2012). "Shape-COG Illusion: Psychophysical influence on center-of-gravity perception by mixed-reality visual stimulation". In: *IEEE Virtual Reality Short Papers and Posters (VRW 2012)*. IEEE, pp. 65–66 (cited on pp. 62, 106, 112).

Papagiannis, H. (2017). *Augmented Human*. O'Reilly Media (cited on p. 210).

Pepper's ghost (n.d.). *Pepper's ghost—Wikipedia, The Free Encyclopedia*. Online; accessed August 7, 2016.

URL: https://en.wikipedia.org/wiki/Pepper%27s_ghost (cited on p. 26).

Persa, S.-F. (2006). "Sensor fusion in head pose tracking for augmented reality". PhD thesis. Delft University of Technology (cited on p. 44).

Pessoa, S., Moura, G., Lima, J., Teichrieb, V., and Kelner, J. (2010). "Photorealistic rendering for augmented reality: A global illumination and brdf solution". In: *Proceedings IEEE Virtual Reality 2010*. IEEE, pp. 3–10 (cited on pp. 117, 144).

Piekarski, W. and Thomas, B. (2002). "ARQuake: the outdoor augmented reality gaming system". *Communications of the ACM*, 45(1), pp. 36–38 (cited on pp. 4, 21, 24, 26, 28, 83, 91, 123, 148, 154).

– (2004). "Augmented reality working planes: A foundation for action and construction at a distance". In: *Proceedings of the 3rd IEEE/ACM International Symposium on Mixed and Augmented Reality*. IEEE Computer Society, pp. 162–171 (cited on p. 22).

Pokémon GO (2016). Mobile application software. URL: http://www.pokemongo.com (cited on pp. 9, 96).

Porta, G. della (1658). *Natural Magick*. Online; accessed November 7, 2014. URL: http://www.mindserpent.com/American_History/books/Porta/jportat5.html (cited on p. 26).

Poupyrev, I. and Maruyama, S. (2003). "Tactile interfaces for small touch screens". In: *Proceedings of the 16th annual ACM symposium on User interface software and technology*. ACM, pp. 217–220 (cited on p. 107).

Punpongsanon, P., Iwai, D., and Sato, K. (2015). "Softar: Visually manipulating haptic softness perception in spatial augmented reality". *IEEE transactions on visualization and computer graphics*, 21(11), pp. 1279–1288 (cited on p. 105).

Rani, K. and Sharma, R. (2013). "Study of different image fusion algorithm". *International journal of Emerging Technology and advanced Engineering*, 3(5), pp. 288–291 (cited on pp. 21, 41).

Raskar, R., Welch, G., and Chen, W.-C. (1999). "Table-top spatially-augmented realty: bringing physical models to life with projected imagery". In: *Proceedings of the 2nd IEEE and ACM International Workshop on Augmented Reality (IWAR'99)*. IEEE, pp. 64–71 (cited on pp. 46, 98, 103).

Raskar, R., Welch, G., and Fuchs, H. (1998). "Spatially augmented reality". In: *First IEEE Workshop on Augmented Reality (IWAR'98)*. Citeseer, pp. 11–20 (cited on pp. 45, 92, 99, 102, 104).

Reality Jockey Ltd. (2013). *Sonic Experiences - RjDj*. Online; accessed November 7, 2014. URL: http://rjdj.me/ (cited on p. 33).

Regenbrecht, H. T. and Schubert, T. (2002). "Measuring presence in augmented reality environments: design and a first test of a questionnaire". *Porto, Portugal* (cited on p. 212).

Regenbrecht, H. T. and Wagner, M. T. (2002). "Interaction in a collaborative augmented reality environment". In: *Extended Abstracts on Human Factors in Computing Systems (CHI'02)*. ACM, pp. 504–505 (cited on p. 40).

Reimann, C. and Paelke, V. (2006). "Computer vision based interaction techniques for mobile augmented reality". In: *Proceedings 5th Paderborn Workshop Augmented and Virtual Reality in der Produktentstehung*. Citeseer, pp. 355–362 (cited on p. 48).

Reiners, D., Stricker, D., Klinker, G., and Müller, S. (1998). "Augmented reality for construction tasks: Doorlock assembly". *First IEEE International Workshop on Augmented Reality (IWAR '98)*, 98(1), pp. 31–46 (cited on pp. 20, 24, 28, 37).

Reitman, I. (2004). *Ghostbusters*. Columbia pictures (cited on p. 193).

RjDj (n.d.). *RjDj—Wikipedia, The Free Encyclopedia*. Online; accessed September 21, 2016. URL: https://en.wikipedia.org/w/index.php?title=RjDj&oldid=740512080 (cited on pp. 103, 126).

RjDjme (2008). *RjDj The mind twisting hearing sensation.* YouTube video. Online; accessed February 17, 2017. URL: https://www.youtube.com/watch?v=WPrIPcyemdM (cited on p. 103).

Roads, C. (1988). "Introduction to granular synthesis". *Computer Music Journal*, 12(2), pp. 11–13 (cited on p. 181).

Roberts, G. W., Evans, A., Dodson, A., Denby, B., Cooper, S., Hollands, R., et al. (2002). "The use of augmented reality, GPS and INS for subsurface data visualization". In: *FIG XXII International Congress*. Washington, DC, USA, pp. 1–12 (cited on pp. 20, 24, 28).

Rokeby, D. (1986-1990). *Very Nervous System*. Interactive sound installation. Online; accessed November 7, 2014. URL: http://www.davidrokeby.com/vns.html (cited on p. 193).

Rosenblum, L. (2000). "Virtual and augmented reality 2020". *Computer Graphics and Applications, IEEE*, 20(1), pp. 38–39 (cited on pp. 21, 24, 26).

Ross, C. (2005). "New Media Arts Hybridity: The Vases (Dis)communicants Between Art, Affective Science and AR Technology". *Convergence: The International Journal of Research into New Media Technologies*, 11(4), pp. 32–42 (cited on pp. 29, 115).

Rozier, J. M. (2000). "Hear&there: An augmented reality system of linked audio". PhD thesis. Massachusetts Institute of Technology (cited on p. 52).

Ruhl, A. (2013). "Vestibular Stimulation as an AR Layer?" *AR[t], Augmented Reality, Art and Technology*, 3. Ed. by H. Schraffenberger, M. Kniveton, Y. Kolstee, and J. Verlinden, pp. 26–29. URL: http://arlab.kabk.nl/ar-magazines (cited on p. 109).

Ruhl, A. and Lamers, M. H. (2011). "Experiments with Galvanic Vestibular Stimulation in Daily Activities". In: *Proceedings of the Chi Sparks 2011 Conference* (cited on p. 109).

Russell, S., Norvig, P., and Intelligence, A. (1995). "A modern approach". *Artificial Intelligence. Prentice-Hall, Egnlewood Cliffs*, 25 (cited on p. 124).

Sano, Y., Hirano, Y., Kimura, A., Shibata, F., and Tamura, H. (2013). "Dent-softness illusion in mixed reality space: Further experiments and considerations". In: *Proceedings IEEE Virtual Reality 2013*. IEEE, pp. 153–154 (cited on pp. 62, 105, 112).

Schäfer, T., Fachner, J., and Smukalla, M. (2013). "Changes in the representation of space and time while listening to music". *Frontiers in psychology*, 4, p. 508 (cited on p. 110).

Scherrer, C., Pilet, J., Fua, P., and Lepetit, V. (2008). "The Haunted Book". In: *Proceedings of the 7th IEEE/ACM International Symposium on Mixed and Augmented Reality (ISMAR '08)*. Washington, DC, USA: IEEE Computer Society, pp. 163–164 (cited on p. 91).

Schmalstieg, D., Fuhrmann, A., Hesina, G., Szalavári, Z., Encarnaçao, L. M., Gervautz, M., and Purgathofer, W. (2002). "The studierstube augmented reality project". *Presence: Teleoperators and Virtual Environments*, 11(1), pp. 33–54 (cited on p. 154).

Schraffenberger, H. (2012). "Chasing virtual spooks, losing real weight". *AR[t], Augmented Reality, Art and Technology*, 2. Ed. by Y. Kolstee, H. Schraffenberger, E. Vahrmeijer, and J. Verlinden, pp. 48–51. URL: http://arlab.kabk.nl/ar-magazines (cited on p. 17).

– (2013). "Subject: Interview". *AR[t], Augmented Reality, Art and Technology*, 3. Ed. by H. Schraffenberger,

M. Kniveton, Y. Kolstee, and J. Verlinden, pp. 18–23. URL: http://arlab.kabk.nl/ar-magazines (cited on p. 17).
Schraffenberger, H. (2014). "Hitting imaginary walls, pulling virtual strings". *AR[t], Augmented Reality, Art and Technology*, 5. Ed. by H. Schraffenberger, M. Kniveton, L. Kolstee, Y. Kolstee, J. Verlinden, and R. Wesdorp, pp. 66–71. URL: http://arlab.kabk.nl/ar-magazines (cited on p. 17).

Schraffenberger, H. and van der Heide, E. (2013a). "From Coexistence to Interaction: Influences Between the Virtual and the Real in Augmented Reality". In: *Proceedings of the 19th International Symposium on Electronic Art (ISEA2013)*. Ed. by K. Cleland, L. Fisher, and R. Harley. Sydney, pp. 1–3 (cited on pp. 16, 18).
– (2013b). "Towards Novel Relationships between the Virtual and the Real in Augmented Reality". In: *Arts and Technology*. Ed. by G. De Michelis, F. Tisato, A. Bene, and D. Bernini. LNICST 116. Springer, pp. 73–80 (cited on p. 16).
– (2014). "The Real in Augmented Reality". In: *Proceedings of the Second Conference on Computation, Communication, Aesthetics and X (xCoAx 2014)*. Ed. by M. Carvalhais and M. Verdicchio, pp. 64–74 (cited on p. 16).
– (2015). "Sonically Tangible Objects". In: *Proceedings of the Third Conference on Computation, Communication, Aesthetics and X (xCoAx 2015)*. Ed. by A. Clifford, M. Carvalhais, and M. Verdicchio, pp. 233–248 (cited on p. 17).
– (2016). "Multimodal Augmented Reality: The Norm Rather Than the Exception". In: *Proceedings of the 2016 Workshop on Multimodal Virtual and Augmented Reality (MVAR '16)*. ACM, pp. 1–6 (cited on p. 17).
– (2018). "Reconsidering Registration: New Perspectives on Augmented Reality". In: *Interactivity, Game Creation, Design, Learning, and Innovation. ArtsIT 2017, DLI 2017.* Ed. by A. L. Brooks, E. Brooks, and N. Vidakis. LNICST 229. Springer, pp. 172–183 (cited on p. 17).
– (2014b). "Everything Augmented: On the Real in Augmented Reality". *Journal of Science and Technology of the Arts*, 6(1), pp. 17–29 (cited on p. 17).

Schubert, T., Friedmann, F., and Regenbrecht, H. (2001). "The experience of presence: Factor analytic insights". *Presence: Teleoperators & Virtual Environments*, 10(3), pp. 266–281 (cited on p. 212).

Sekiguchi, Y., Hirota, K., and Hirose, M. (2005). "The Design and Implementation of Ubiquitous Haptic Device". In: *Proceedings of the First Joint Eurohaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems (WHC '05)*. Washington, DC, USA: IEEE Computer Society, pp. 527–528 (cited on pp. 94, 106, 187).

Seyama, J. and Nagayama, R. S. (2007). "The uncanny valley: Effect of realism on the impression of artificial human faces". *Presence: Teleoperators and virtual environments*, 16(4), pp. 337–351 (cited on p. 157).

Shazam (2008). Mobile application software. URL: http://www.shazam.com/ (cited on p. 87).

Sheffield, E. (2004). "Beyond abstraction: Philosophy as a practical qualitative research method". *The qualitative report*, 9(4), pp. 760–769 (cited on p. 10).

Sheridan, T. B. (1992). "Musings on telepresence and virtual presence". *Presence: Teleoperators & Virtual Environments*, 1(1), pp. 120–126 (cited on p. 212).

Siemens SX1 (n.d.). *Siemens SX1—Wikipedia, The Free Encyclopedia*. Online; accessed August 25, 2016. URL: https://en.wikipedia.org/w/index.php?title=Siemens_SX1&oldid=736142402 (cited on p. 48).

Silva, E. S., de Abreu, J., de Almeida, J., Teichrieb, V., and Ramalho, G. L. (2013). "A preliminary evaluation of the leap motion sensor as controller of new digital musical instruments". *Recife, Brasil* (cited on p. 185).

Silva, R., Oliveira, J. C., and Giraldi, G. A. (2003). "Introduction to augmented reality". *National Laboratory for Scientific Computation, Av. Getulio Vargas* (cited on pp. 29, 188).

Six degrees of freedom (n.d.). *Six degrees of freedom—Wikipedia, The Free Encyclopedia*. Online; accessed December 6, 2016. URL: https://en.wikipedia.org/w/index.php?title=Six_degrees_of_freedom&oldid=753300785 (cited on p. 43).

Sobecka, K. (n.d.). *All the Universe is Full of the Lives of Perfect Creatures | Karolina Sobecka*. URL: http://www.gravitytrap.com/artwork/perfect-creatures (cited on p. 151).

Spence, C. and Youssef, J. (2015). "Olfactory dining: designing for the dominant sense". *Flavour*, 4(1), p. 32 (cited on pp. 24, 30, 68).

Sphero (2011). Robot toy. URL: http://www.gosphero.com/ (cited on pp. 4, 40, 56, 60, 91, 147, 159).

Staddon, J. E. R. (1975). "A note on the evolutionary significance of" supernormal" stimuli". *The American Naturalist*, 109(969), pp. 541–545 (cited on p. 171).

Steuer, J. (1992). "Defining Virtual Reality: Dimensions Determining Telepresence". *Journal of Communication*, 42(4), pp. 73–93 (cited on pp. 68, 212).

Street Museum NL (2013). Mobile application software. Version 2.0. URL: https://itunes.apple.com/de/app/museum-london-streetmuseum/id369684330?l=en&mt=8 (cited on pp. 85, 127).

Sugano, N., Kato, H., and Tachibana, K. (2003). "The effects of shadow representation of virtual objects in augmented reality". In: *Proceedings of the Second IEEE and ACM International Symposium on Mixed and Augmented Reality*. IEEE, pp. 76–83 (cited on pp. 55, 119).

Sutherland, I. E. (1965). "The Ultimate Display". In: *Proceedings of the IFIP Congress*. Online; accessed November 7, 2014, pp. 506–508. URL: http://www8.informatik.umu.se/~jwworth/TheUltimateDisplay.pdf (cited on pp. 26, 137–139, 161, 213).

– (1968). "A head-mounted three dimensional display". In: *Proceedings of the AFIPS '68 Fall Joint Computer Conference, December 9-11, 1968, San Francisco, California, USA - Part I*. vol. 33. AFIPS Conference Proceedings. AFIPS, pp. 757–764 (cited on p. 3).

Takeuchi, Y. (2010). "Gilded gait: reshaping the urban experience with augmented footsteps". In: *Proceedings of the 23nd annual ACM symposium on User interface software and technology*. ACM, pp. 185–188 (cited on p. 106).

The app formerly known as H _ _ r (2016). Mobile application software. Version 0.3.2. URL: http://hearapp.io (cited on pp. 33, 103, 104).

The Invisible Drums of Demian Kappenstein and Marc Bangert (2011). Blog post. Online; accessed November 7, 2014. URL: http://www.moderndrummer.com/site/2011/10/the-invisible-drums-of-demian-kappenstein-and-marc-bangert (cited on p. 193).

Thomas, B. (2009). "Augmented Reality Visualisation Facilitating The Architectural Process". In: *Mixed Reality In Architecture, Design And Construction*. Ed. by X. Wang and M. Schnabel. Springer Netherlands, pp. 105–118 (cited on pp. 22, 24).

Thomas, B., Close, B., Donoghue, J., Squires, J., de Bondi, P., Morris, M., and Piekarski, W. (2000). "ARQuake: An Outdoor/Indoor Augmented Reality First Person Application". In: *Proceedings of the 4th*

IEEE International Symposium on Wearable Computers (ISWC 2000). Washington, DC, USA: IEEE Computer Society, pp. 139–146 (cited on pp. 3, 4, 91).

Unstable Media, V. for the (n.d.). URL: http://v2.nl/archive/works/sonic-interface (cited on p. 104).

Valbuena, P. (2008). *N 520437 E 041900 [the hague city hall*. Site-specific large scale intervention. Online; accessed November 7, 2014. URL: http://www.pablovalbuena.com/selectedwork/n-520437-e-041900/ (cited on pp. 5, 83, 102, 103).

Valentini, P. P. and Pezzuti, E. (2010). "Interactive multibody simulation in augmented reality". *Journal of Theoretical and Applied Mechanics*, 48(3), pp. 733–750 (cited on pp. 145, 153, 156).

Vallino, J. R. (1998). "Interactive augmented reality". PhD thesis. Rochester, NY, USA: University of Rochester (cited on pp. 26, 40, 188).

Vallino, J. R. and Brown, C. (1999). "Haptics in augmented reality". In: *Proceedings IEEE International Conference on Multimedia Computing and Systems*. Vol. 1. IEEE, pp. 195–200 (cited on pp. 41, 97, 149).

van der Heide, E. (2012). "Radioscape—in the context of augmented reality". *AR[t], Augmented Reality, Art and Technology*, 2. Ed. by Y. Kolstee, H. Schraffenberger, E. Vahrmeijer, and J. Verlinden, pp. 18–23. URL: http://arlab.kabk.nl/ar-magazines (cited on p. 120).
– (2000-). *Radioscape*. Immersive electromagnetic environment. Online; accessed November 7, 2014. URL: http://www.evdh.net/radioscape/ (cited on pp. 33, 120, 147).

van Duijn, M. J. (2016). "The lazy mindreader: a humanities perspective on mindreading and multiple-order intentionality". PhD thesis (cited on p. 8).

Van Hoof, J., Mazej, M., and Hensen, J. L. (2010). "Thermal comfort: research and practice". *Frontiers in Bioscience*, 15(2), pp. 765–788 (cited on p. 110).

Van Krevelen, D. and Poelman, R. (2010). "A survey of augmented reality technologies, applications and limitations". *International Journal of Virtual Reality*, 9(2), p. 1 (cited on p. 29).

van Krevelen, D. and Poelman, R. (2010). "A survey of augmented reality technologies, applications and limitations". *International Journal of Virtual Reality*, 9(2), pp. 1–20 (cited on pp. 3, 25).

van Velthoven, L. (2011). *Room Racers*. Interactive installation. Online; accessed November 7, 2014. URL: www.lievenvv.com/Projects/RoomRacers.htm (cited on p. 118).

Veenhof, S. (2010). *MoMA NYC augmented reality exhibition*. https://www.youtube.com/watch?v=b9T2LVM7ynM (cited on p. 92).
– (2016). *Augmented Reality art exhibition MoMA NYC (guerrilla intervention)*. URL: http://www.sndrv.nl/moma/ (cited on pp. 60, 92).

Verlinden, J. C., de Smit, A., Peeters, A. W. J., and van Gelderen, M. H. (2003). "Development of a flexible augmented prototyping system". *Journal of WSCG*, 11(3), pp. 496–503 (cited on pp. 98, 103).

Walter, W. G. (1950). "An imitation of life". *Scientific American*, 182(5), pp. 42–45 (cited on p. 165).

Ward, J. and Meijer, P. (2010). "Visual experiences in the blind induced by an auditory sensory substitution device". *Consciousness and cognition*, 19(1), pp. 492–500 (cited on p. 114).

Watson, T. (2005). *Audio Space*. Interactive installation. Online; accessed November 7, 2014. URL: http://www.theowatson.com/site_docs/work.php?id=15 (cited on pp. 33, 102).

Wei, J., Zhao, S., Nakatsu, R., and Duh, H. B. (2012). "When AR meets food: A structural overview of the research space on multi-facets of food". In: *Proceedings of the IEEE International Symposium on Mixed and*

Augmented Reality (ISMAR-AMH 2012). IEEE, pp. 97–98 (cited on p. 109).

Winzen, J., Albers, F., and Marggraf-Micheel, C. (2014). "The influence of coloured light in the aircraft cabin on passenger thermal comfort". *Lighting Research & Technology*, 46(4), pp. 465–475 (cited on p. 110).

Witmer, B. G. and Singer, M. J. (1998). "Measuring presence in virtual environments: A presence questionnaire". *Presence*, 7(3), pp. 225–240 (cited on p. 212).

Yamada, T., Yokoyama, S., Tanikawa, T., Hirota, K., and Hirose, M. (2006). "Wearable olfactory display: Using odor in outdoor environment". In: *Proceedings IEEE Virtual Reality 2006*. IEEE, pp. 199–206 (cited on p. 61).

Yanagida, Y., Kawato, S., Noma, H., Tomono, A., and Tesutani, N. (2004). "Projection based olfactory display with nose tracking". In: *Proceedings IEEE Virtual Reality 2004*. IEEE, pp. 43–50 (cited on p. 96).

You, S. and Neumann, U. (2001). "Fusion of vision and gyro tracking for robust augmented reality registration". In: *Proceedings IEEE Virtual Reality 2001*. IEEE, pp. 71–78 (cited on p. 41).

Yuen, S., Yaoyuneyong, G., and Johnson, E. (2011). "Augmented reality: An overview and five directions for AR in education". *Journal of Educational Technology Development and Exchange*, 4(1), pp. 119–140 (cited on p. 79).

Zhou, F., Duh, H. B.-L., and Billinghurst, M. (2008). "Trends in Augmented Reality Tracking, Interaction and Display: A Review of Ten Years of ISMAR". in: *Proceedings of the 7th IEEE/ACM International Symposium on Mixed and Augmented Reality (ISMAR '08)*. Washington, DC, USA: IEEE Computer Society, pp. 193–202 (cited on pp. 7, 20, 22, 24, 37, 59, 74).

Zokai, S., Esteve, J., Genc, Y., and Navab, N. (2003). "Multiview paraperspective projection model for diminished reality". In: *Proceedings of the Second IEEE and ACM International Symposium on Mixed and Augmented Reality*. IEEE, pp. 217–226 (cited on p. 100).