

# Curriculum Vitae – Wolfgang Büschel

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## Career Summary

Since March 2025	Research Associate at VISUS, University of Stuttgart
April 2023	Ph.D. (summa cum laude) in computer science at Dresden University of Technology <i>Reviewers:</i> Raimund Dachelt, Tim Dwyer <i>Thesis:</i> "Spatial Interaction for Immersive Mixed-Reality Visualizations"
2016 - 2023	Doctoral studies at the Chair of Multimedia Technology, TU Dresden
2012 – February 2024	Research Associate at the Chair of Multimedia Technology, TU Dresden
2010 – 2012	Master of Science (M.Sc.) in Computational Visualistics at Otto-von-Guericke University Magdeburg
2006 – 2010	Bachelor of Science (B.Sc.) in Computational Visualistics at Otto-von-Guericke University Magdeburg
2005	High-school diploma (Abitur) at Berufliche Schule Technik Schwerin, general qualification for university entrance

## Awards

2024	Dissertation Award of Commerzbank's Dresden Cultural Foundation
2018	ACM CHIIR 2018 Best Paper Award
2017	ACM ISS 2017 Best Demo Award
2014	IEEE ISMAR 2014 Best Paper Award DIS 2014 Honorable Mention Award
2012	ACM ITS 2012 Best Paper Award

## Networking & Collaboration

I have experience working in international & interdisciplinary teams, including my work in the research clusters *fast*, *CPEC*, and *6G-life*.

I am an internationally recognized researcher in the field of immersive and situated analytics. In 2017, I was one of the chapter leads for a book on Immersive Analytics, organizing the work of an international team of authors over multiple time zones for several months. Following a series of workshops in 2020, I was part of an international author team for a highly successful CHI paper (192 citations since 2021) on the grand challenges of Immersive Analytics. In 2024, I was invited to the NII Shonan Meeting #213: "*Augmented Multimodal Interaction for Synchronous Presentation, Collaboration, and Education with Remote Audiences*," which resulted in several ongoing research collaborations.

I have presented my research not only at numerous international conferences but also during invited talks, including at MPI-CBG, the CPEC general assembly, and at VISUS of Stuttgart University.

## Service & Outreach

I have written more than 40 reviews for international conferences and journals, such as ACM CHI, ACM UIST, and IEEE TVCG, and I received six special recognitions for outstanding reviews.

I was on the local organizing committee and served as Proceedings Co-Chair for Mensch und Computer 2018. I was also a student volunteer at ISS 2017 and ITS 2014.

From 2018 until leaving TU Dresden, I was an elected member of the Institute Council of the Institute of Software and Multimedia Technology. From 2018 to 2021, I also served as a substitute representative to the Faculty Council of the Faculty of Computer Science at Dresden University of Technology.

I regularly represented the lab and demonstrated my research to industry contacts, students, and pupils during open house events, the department's project fair *Output.DD*, and annual *Girls' Day* events.

## Teaching & Student Supervision

I successfully supervised ca. 40 student theses, including bachelor's, master's, and diploma theses. I have taught and supervised in ca. 30 seminars and practical courses. In July 2024, I was granted independent teaching and examination authorization.

## Selected Courses

- Seminars on Interactive Multimedia Technologies
- Exercises in Data Visualization, Advanced User Interfaces, and User Interface Engineering
- Lab projects on Multimedia Computer Science, Advanced User Interfaces, Interactive Multimedia Technologies, User Interface Engineering, Visualization and Interaction Techniques, and Interactive Visual Computing
- Lectures on 3D User Interfaces, Immersive Visualization, and Quantitative User Studies
- Assistance in creating slides for the lectures Advanced User Interfaces, User Interface Engineering, and Interactive Information Visualization

## Grant Proposals & Funding

I assisted in writing the successful grant proposals of *fastVPN* (part of the *fast* cluster, BMBF) and *CPEC - Center for Perspicuous Computing* (Transregional Collaborative Research Center 248, DFG). I also helped with the defense of the first two phases of CPEC.

## Scientific Publications

I have more than 30 international publications with more than 1200 citations and an h-index of 16 (Google Scholar, March 2025). A full list is also available at <https://www.imld.de/~bueschel>.

## Conference Full Papers

K. Krug\*, **W. Büschel**\*, K. Klamka, and R. Dachzelt. "*CleAR Sight: Exploring the Potential of Interacting with Transparent Tablets in Augmented Reality*". In: Proceedings of the 21st IEEE International Symposium on Mixed and Augmented Reality. ISMAR '22. IEEE, 2022.

*\*Both authors contributed equally.*

**W. Büschel**, A. Lehmann, and R. Dachzelt. "*MIRIA: A Mixed Reality Toolkit for the In-Situ Visualization and Analysis of Spatio-Temporal Interaction Data*". In: Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems. CHI '21. ACM, Article 470, pages 1–15, 2021.

R. Langner, M. Satkowski, **W. Büschel**, and R. Dachzelt. "*MARVIS: Combining Mobile Devices and Augmented Reality for Visual Data Analysis*". In: Proceedings of the 2021 CHI Conference

on Human Factors in Computing Systems. CHI '21. ACM, Article 468, pages 1–17, 2021.

B. Ens, B. Bach, M. Cordeil, U. Engelke, M. Serrano, W. Willett, A. Prouzeau, C. Anthes, **W. Büschel**, C. Dunne, T. Dwyer, J. Grubert, J. H. Haga, N. Kirshenbaum, D. Kobayashi, T. Lin, M. Olaosebikan, F. Pointecker, D. Saffo, N. Saquib, D. Schmalstieg, D. Albers Szafir, M. Whitlock, Y. Yang. *“Grand Challenges in Immersive Analytics”*. In: Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems. CHI '21. ACM, Article 459, pages 1–17, 2021.

**W. Büschel**, A. Mitschick, T. Meyer, and R. Dachzelt. *“Investigating Smartphone-based Pan and Zoom in 3D Data Spaces in Augmented Reality”*. In: Proceedings of the 21st International Conference on Human-Computer Interaction with Mobile Devices and Services. MobileHCI '19. ACM, pages 1-13, 2019.

A. Bluschke, **W. Büschel**, M. Hohmuth, F. Jehring, R. Kaminski, K. Klamka, S. Köpsell, A. Lackorzynski, T. Lackorzynski, M. Matthews, P. Rietzsch, A. Senier, P. Sieber, V. Ulrich, R. Wiggers, and J. Wolter. *“fastvpn – Secure and Flexible Networking for Industry 4.0”*. In: Broadband Coverage in Germany; 12. ITG-Symposium. VDE Verlag GmbH - Berlin - Offenbach, pages 28-35, 2018.

**W. Büschel**, A. Mitschick, and R. Dachzelt. *“Here and Now: Reality-based Information Retrieval”*. In: Proceedings of the ACM SIGIR Conference on Human Information Interaction and Retrieval. CHIIR '18. ACM, pages 171-180, 2018.

**W. Büschel**, P. Reipschläger, R. Langner, and R. Dachzelt. *“Investigating the Use of Spatial Interaction for 3D Data Visualization on Mobile Devices”*. In: Proceedings of the 2017 ACM International Conference on Interactive Surfaces and Spaces. ISS '17. ACM, pages 62-71, 2017.

U. v. Zadow, **W. Büschel**, R. Langner, and R. Dachzelt. *“SleeD: Using a Sleeve Display to Interact with Touch-sensitive Display Walls”*. In: Proceedings of the 2014 ACM International Conference on Interactive Tabletops and Surfaces. ITS '14. ACM, pages 129-138, 2014.

K. Rohmer, **W. Büschel**, R. Dachzelt, and T. Grosch. *“Interactive Near-field Illumination for Photorealistic Augmented Reality on Mobile Devices”*. In: 2014 IEEE International Symposium on Mixed and Augmented Reality. ISMAR '14. IEEE, pages 29-38, 2014.

J. D. Hincapié-Ramos, S. Roscher, **W. Büschel**, U. Kister, R. Dachzelt, and P. Irani. *“tPad: Designing Transparent-Display Mobile Interactions”*. In: Proceedings of the 10th ACM Conference on Designing Interactive Systems. DIS '14. ACM, pages 161-170, 2014.

J. D. Hincapié-Ramos, S. Roscher, **W. Büschel**, U. Kister, R. Dachzelt, and P. Irani. *“cAR: Contact Augmented Reality with Transparent-Display Mobile Devices”*. In: Proceedings of the 3rd International Symposium on Pervasive Displays. PerDis '14. Pages 80-85, 2014.

**W. Büschel**, U. Kister, M. Frisch, and R. Dachzelt. *“T4 - Transparent and Translucent Tangibles on Tabletops”*. In: Proceedings of the 12th International Working Conference on Advanced Visual Interfaces 2014. AVI '14. ACM, pages 81-88, 2014.

M. Spindler, **W. Büschel**, and R. Dachzelt. *“Use Your Head: Tangible Windows for 3D Information Spaces in a Tabletop Environment”*. In: Proceedings of the 2012 ACM International Conference on Interactive Tabletops and Surfaces. ITS '12. ACM, pages 245-254, 2012.

## Journal Articles

**W. Büschel**, S. Vogt, and R. Dachzelt. *"Augmented Reality Graph Visualizations: Investigation of Visual Styles in 3D Node-Link Diagrams"*. In: IEEE Computer Graphics and Applications Volume 39, Number 3. IEEE, pages 29-40, 2019.

Kai Rohmer, **W. Büschel**, R. Dachzelt, and T. Grosch. *"Interactive Near-Field Illumination for Photorealistic Augmented Reality with Varying Materials on Mobile Devices"*. In: IEEE Transactions on Visualization and Computer Graphics. IEEE, pages 1349-1362, 2015.

M. Spindler, **W. Büschel**, C. Winkler, and R. Dachzelt. *"Tangible displays for the masses: spatial interaction with handheld displays by using consumer depth cameras"*. In: Personal and Ubiquitous Computing. Springer London, pages 1213-1225, 2014.

## Book Chapter

**W. Büschel**, J. Chen, R. Dachzelt, S. Drucker, T. Dwyer, C. Görg, T. Isenberg, A. Kerren, C. North, W. Stuerzlinger. *"Interaction for Immersive Analytics"*. In: K. Marriott et al. (Eds.), Immersive Analytics. Springer International Publishing, pages 95-138, 2018.

## Extended Abstracts of Posters and Demos

**W. Büschel**, A. Mitschick, and R. Dachzelt. *"Demonstrating Reality-Based Information Retrieval"*. In: Proceedings of the 2018 CHI Conference Extended Abstracts on Human Factors in Computing Systems. CHI '18. ACM, pages D312:1-D312:4, 2018.

K. Klamka, **W. Büschel**, and R. Dachzelt. *"Illuminated Interactive Paper with Multiple Input Modalities for Form Filling Applications"*. In: Proceedings of the 2017 ACM International Conference on Interactive Surfaces and Spaces. ISS '17. ACM, pages 434-437, 2017.

**W. Büschel**, P. Reipschläger, and R. Dachzelt. *"Foldable3D: Interacting with 3D Content Using Dual-Display Devices"*. In: Proceedings of the 2016 ACM International Conference on Interactive Surfaces and Spaces. ISS '16. ACM, pages 367-372, 2016.

F. Matulic, **W. Büschel**, M. Yang, S. Ihrke, A. Ramraika, C. Rother, and R. Dachzelt. *"Smart Ubiquitous Projection: Discovering Surfaces for the Projection of Adaptive Content"*. In: Proceedings of the 34th Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems. CHI EA '16. ACM, pages 2592-2600, 2016.

## Workshop Papers

M. Satkowski, **W. Büschel**, and R. Dachzelt. *"Experiences with User Studies in Augmented Reality"*. In: CHI 2021 Workshop on Evaluating User Experiences in Mixed Reality. CHI '21. 2021.

**W. Büschel**, G. Eckert, and R. Dachzelt. *"Challenges in Collaborative Immersive Visualization"*. In: CHI 2020 Workshop on Immersive Analytics: Envisioning Future Productivity for Immersive Analytics. CHI '20. pages 1-6, 2020.

**W. Büschel**, S. Vogt, and R. Dachzelt. *"Investigating Link Attributes of Graph Visualizations in Mobile Augmented Reality"*. In: CHI 2018 Workshop on Data Visualization on Mobile Devices. MobileVis '18 Workshop at CHI '18. 2018.

**W. Büschel**, P. Reipschläger, and R. Dachzelt. *"Improving 3D Visualizations: Exploring Spatial Interaction with Mobile Devices"*. In: ISS 2016 Workshop Immersive Analytics: Exploring Future Interaction and Visualization Technologies for Data Analytics. ISS '16. ACM, 2016.

**W. Büschel**, R. Langner, U. v. Zadow, T. Horak, and R. Dachzelt. *"Towards Cross-Surface Content Sharing Between Mobile Devices and Large Displays in the Wild"*. In: CHI 2016 Workshop on Interacting with Multi-Device Ecologies "in the Wild". CHI '16. 2016.

M. Frisch, U. Kister, **W. Büschel**, R. Langner, and R. Dachzelt. *"Translucent Tangibles on Tabletops: Exploring the Design Space"*. In: CHI 2013 Workshop on Blended Interaction - Envisioning Future Collaborative Interactive Spaces. CHI '13. 2013.

**W. Büschel**, A. Viergutz, and R. Dachzelt. *"Towards Interaction with Transparent and Flexible Displays"*. In: CHI 2013 Workshop on Displays Take New Shape: An Agenda for Future Interactive Surfaces. CHI '13. 2013.