

Pavel Manakhov, Ph.D.



Date of birth: 09/04/1988
Affiliation: Lancaster University, United Kingdom
Email: p.manakhov@lancaster.ac.uk
Personal email: pavel.manakhov@gmail.com
Google Scholar: scholar.google.com/citations?user=LRwExeYAAAAAJ&hl=en
ORC profile: orcid.org/0000-0003-3443-4088
LinkedIn: linkedin.com/in/pmanakhov/

1. Key Facts

- **Research experience:** Developing a research programme in eXtended Reality (XR) interaction on the go:
 - **Hold two PhD degrees** in Engineering (MSUT “STANKIN”, Russia) and Computer Science (Aarhus University, Denmark), with the second PhD undertaken specifically to establish international standing in XR and HCI ([Section 3](#)).
 - **Proven publication record** in premier venues on gaze stabilization in wearable XR, gaze-based interaction, and environmental awareness during locomotion ([Section 4](#)).
 - Co-organizer of the upcoming **Dagstuhl Seminar** “XR Interaction in Motion” (Aug 2027), alongside Profs. Stefanie Zollmann, Raimund Dachsel, and Mark Billinghurst ([Section 8](#)).
- **Teaching experience:** Designed and taught 13 undergraduate- and master’s-level courses in HCI, including one massive online open course on Coursera. Created a two-year minor in User Experience Design from the ground up, which became the top-ranked elective across all faculties ([Section 5](#)).
- **Industry experience:** 10 years of industry experience as a Software Engineer and Lead UX/Interaction Designer in both agency and product-team settings ([Section 2](#)).
- **Supervisory experience:** extensive supervision and mentoring experience both in academia (undergraduate and master’s students) and industry (multidisciplinary teams of up to 16 staff members). Currently co-supervising two PhD students within the GEMINI research group at Lancaster University alongside Prof. Hans Gellersen ([Section 6](#)).
- **Community service:** co-organizer of COGAIN, a regular workshop on eye tracking and accessibility at ACM ETRA; PC member for IEEE ISMAR, VRST and ACM ETRA, NordiCHI, SUI, AlpCHI, MUM; active reviewer for 12 HCI conferences since 2016 ([Section 8](#)).

2. Professional Experience

01/08/2025 present	–	Senior Research Associate, Lancaster University Part of the GEMINI research group
01/10/2024 31/12/2024	–	Visiting Researcher, Ștefan cel Mare University of Suceava Part of the MintViz lab led by Prof. Radu-Daniel Vatavu
01/08/2022 31/07/2025	–	Research Fellow, Aarhus University My research was focused on 3D interaction during mobility
09/01/2019 27/07/2022	–	Associate Professor (Education-focused), HSE University Taught 4-5 courses on human-computer interaction, including courses on VR/AR, per year; created a minor on UX design

26/07/2017	–	UX Designer, <i>Electronic Office Systems</i>
28/12/2018		Worked on design of an enterprise document management system, conducted user studies including field visits, interviews, and usability tests
01/11/2014	–	Associate Professor (part-time), <i>HSE University</i>
31/03/2018		Taught one course on interaction design per year; developed the massive online open course “Mobile Interaction Design” for Coursera
14/01/2013	–	Lead Interaction Designer, <i>USABILITYLAB LLC</i>
21/07/2017		Worked on multiple commercial projects spanning subject domains, platforms, and complexity; led a design & user research team (up to 16 people)
01/08/2008	–	C++ Developer, <i>Si-Trans Ltd.</i>
30/03/2012		Worked on implementation and design of an enterprise resource planning system; led an engineering team (up to 6 people)

3. Education

01/08/2022	–	Ph.D. in Computer Science, <i>Aarhus University</i>
31/07/2025		Thesis: “3D UI Placement for Interaction On the Go” Supervisors: Prof. Hans Gellersen, A/Prof. Ken Pfeuffer
01/09/2010	–	Candidate of Technical (Engineering) Sciences (Ph.D.-equivalent), <i>MSUT “STANKIN”</i>
13/12/2012		Thesis: “A Model for Text Entry on Devices with Touch Screens” (in Russian) Supervisor: D.Sc., Prof. Eugene E. Kovshov
01/09/2008	–	Master’s in Engineering, <i>MSUT “STANKIN”</i>
09/06/2010		Thesis: “Stroke-oriented UI: Enhancement of User Interface of Mobile Devices with Touch Screens” (in Russian) 🏆
01/09/2004	–	Bachelor’s in Engineering, <i>MSUT “STANKIN”</i>
17/06/2008		Thesis: “A Cross-platform Speaker-independent Engine for Recognition of Isolated Voice Commands” (in Russian)

4. Research Output

Key Facts

- Research focus: **XR interaction during physical movement** [a, 3, 5-6, 8-9] and **interaction techniques** [1-2, 4, 7, 10-11]; previous work on usability studies [13], mobile interaction [15-23], and voice user interfaces [24-28].
- Established an **independent publication record beyond my PhD/postdoctoral supervisors**, including first-author publications [13] and publications arising from research I supervised [a, 2, 7].
- Two patents demonstrating **industrial impact** [12, 14].

Submitted

Full paper

[a] Qu, Z., Fronk, C., Jeong, J., Manakhov, P., & Gorlatova, M. (Submitted). Better Situational Awareness in AR-HRC? A Comparative Study of Augmented Reality and Mobile Interfaces for Human-Robot Collaboration. In *Proceedings of the 2027 IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, 1-13.

Publications (in Reversed Chronological Order)

- Full paper [1] Wang, H., Manakhov, P., Mikkelsen, T., Weidner, F., Pfeuffer, K., & Gellersen, H. (Accepted, 2026). MagicPitch: 3D Object Manipulation with Gaze, Pinch, and Head Pitch. In *Proceedings of the 25th IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, 1-14. (will be presented at the IEEE ISMAR conference in October)
- Workshop paper [2] Baydarov, E., Trukhan, E., Shibanov, E., & Manakhov, P. (Accepted, 2026). Tracing Across Modalities: Investigating Alternative Interaction Techniques for Gesture Typing in Extended Reality. In *Proceedings of the 5th Workshop on Gaze and Eye Movement in Interaction in XR (GEMINI '26) at ISMAR 2026*, 1-8. (will be presented at the GEMINI workshop in October)
- Full paper [3] Zollmann, S., Langlotz, T., Wagner, D., Manakhov, P., & Lo, W. H. (Accepted, 2026). AR Widgets: Exploring Placement Strategies for Persistent Widgets for Augmented Reality. *Proceedings of the ACM on Human-Computer Interaction*, 10(5), Article MHCI9650. DOI: 10.1145/3821712 (will be presented at the MobileHCI conference in September)
- Full paper [4] Hou, B. J., Manakhov, P., Hu, J., Wang, H., Gellersen, H. (2026, May). Aligner, Nodder, and Winker: Creating Complete, Hands-Free Interaction Techniques that Unify Precise, UI-Independent Selection and Dragging. *Proceedings of the ACM on Human-Computer Interaction*, 10(3), ETRA016:1-ETRA016:21. DOI: 10.1145/3806030 (presented at the ACM ETRA conference)
- Workshop paper [5] Manakhov, P. & Gellersen, H., (2026, April). UI Placement as a Critical Design Factor for Augmented Reality During Locomotion. In *Proceedings of the CHI 2026 Workshop on Next Steps for Augmented Reality On-the-Move: Challenges & Opportunities (AR On-the-Move — CHI '26)*. DOI: 10.48550/arXiv.2604.06102
- Thesis [6] Manakhov, P. (2025, November). *3D UI Placement for Interaction on the Go*. PhD Thesis. Aarhus University.
- Full paper [7] Tsimbalistaia, U., Berger, C., Gellersen, H., & Manakhov, P. (2025, April). On-body Icons: Designing a 3D Interface for Launching Apps in Augmented Reality. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems* (pp. 1-15). DOI: 10.1145/3706598.3713954
- Full paper [8] Manakhov, P., Sidenmark, L., Pfeuffer, K., & Gellersen, H. (2024). Filtering on the Go: Effect of Filters on Gaze Pointing Accuracy During Physical Locomotion in Extended Reality. In *IEEE Transactions on Visualization and Computer Graphics*. DOI: 10.1109/TVCG.2024.3456153 (presented at the IEEE ISMAR conference)
- Full paper [9] Manakhov, P., Sidenmark, L., Pfeuffer, K., & Gellersen, H. (2024). Gaze on the Go: Effect of Spatial Reference Frame on Visual Target Acquisition During Physical Locomotion in Extended Reality. In *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems* (pp. 1-16). DOI: 10.1145/3613904.3642915
- Full paper [10] Pfeuffer, K., Obernolte, J., Dietz, F., Mäkelä, V., Sidenmark, L., Manakhov, P., Pakanen, M. & Alt, F. (2023). PalmGazer: Unimanual Eye-hand Menus in Augmented Reality. In *Proceedings of the 2023 ACM Symposium on Spatial User Interaction* (pp. 1-12). DOI: 10.1145/3607822.3614523 🏆
- Full paper [11] Wagner, U., Lystbæk, M. N., Manakhov, P., Grønbæk, J. E. S., Pfeuffer, K., & Gellersen, H. (2023, April). A Fitts' Law Study of Gaze-Hand Alignment for Selection in 3D User Interfaces. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems* (pp. 1-15). DOI: 10.1145/3544548.3581423
- Patent [12] Neroev, V., Zueva, M., Manakhov, P., Neroeva, N., Shan, A., Chujkin, N., & Fadeev, D. (2022). Method for improving the functional activity of the visual system using fractal phototherapy using a stereoscopic display (Patent RU 2773684 C1). Issued: Oct. 4, 2021.
- Extended Abstract [13] Manakhov, P., & Ivanov, V. D. (2016, May). Defining Usability Problems. In *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems* (pp. 3144-3151). ACM. DOI: 10.1145/2851581.2892387
- Patent [14] Manakhov, P. (2013). Method of inputting data using touch-sensitive surface, for example, touchpad or touch screen (Patent RU 2472207 C1). Issued: Aug. 4, 2011.
- Thesis

- [15] Manakhov, P. (2012, December). *A model for text entry on devices with touch screen*. PhD Thesis. MSUT “STANKIN”.
- Full paper [16] Manakhov, P. A., & Kovshov, E. E. (2012). Models and methods of human-computer interaction. *Journal of Applied Informatics*, 3(39), 71-81. (in Russian)
- Full paper [17] Manakhov, P. A., & Kovshov, E. E. (2012). Innovative solution on touch-sensitive surfaces for blind text input. *Modern Problems of Science and Education*, 2. (in Russian)
- Full paper [18] Manakhov, P. A., & Kovshov, E. E. (2012). The method of strokes in man-machine interaction to enhance the security of automated manufacturing. *Life Safety*, 2, 22-27. (in Russian)
- Full paper [19] Manakhov, P. A., & Kovshov, E. E. (2012). Improved touch-sensitive text input method for people with visual disabilities. *Journal of Applied Informatics*, 1(37), 75-84.
- Extended Abstract [20] Manakhov, P. A. (2011). Development of a blind input method for mobile devices with touch screen. In *Proceeding of the National Contest of Students' Research Papers in Engineering Sciences in Russian Festival of Science: Extended Abstracts of Winners of National Contest* (pp. 91-99). Moscow: MSUDT. (in Russian) 🏆
- Extended Abstract [21] Manakhov, P. A. (2010). An innovative approach in designing user interfaces of mobile application. In *Innovations in Economics – 2010: Conference Proceedings* (pp. 90-93). Moscow: MSUT “STANKIN” Publ. (in Russian)
- Extended Abstract [22] Manakhov, P. A., & Kovshov, E. E. (2009). A user interface for work with an anamnesis on mobile devices. In *Proceedings of 5th International Forum “MedSoft-2009”* (pp. 65-66). Moscow. (in Russian)
- Extended Abstract [23] Manakhov, P. A. (2008). The stroke-oriented user interface for mobile operating systems. In *System Analysis, Control and Processing of information: Conference Proceedings*. Vol. 2 (pp. 86-94). Moscow: MSUPA. (in Russian)
- Extended Abstract [24] Manakhov, P. A. (2008). The fast wavelet transform algorithm for recognition of voice commands in computer systems with limited processing resources. In *Applied Informatics and Mathematical Modelling: Conference Proceedings*. Moscow: MSUPA. (in Russian) 🏆
- Extended Abstract [25] Manakhov, P. A., & Kovshov, E. E. (2008). A voice user interface for controlling appliances and equipment for people with disabilities. In *Proceedings of 4th International Forum “MedSoft-2008”* (pp. 43-44). Moscow. (in Russian)
- Extended Abstract [26] Manakhov, P. A., & Kovshov, E. E. (2007). Speech recognition for manufacturing software systems. In *Production. Technology. Ecology. Proceedings of “PROTEK’07” Conference*. Vol. 10. Moscow.
- Extended Abstract [27] Manakhov, P. A., & Kovshov, E. E. (2007). Speech recognition in embedded software systems. In O. A. Kazakov (Ed.), *Proceeding of 10th Scientific Conference of MSUT “STANKIN” and “Research Centre of Mathematical Modelling MSUT “STANKIN”*. Moscow: “YANUS-K” & MSUT “STANKIN” Publ. (in Russian)
- Extended Abstract [28] Manakhov, P. A. (2007). Voice control in embedded software systems. In *Applied Informatics and Mathematical Modelling: Conference Proceedings*. Moscow: MSUPA. (in Russian) 🏆

5. Teaching

Massive Online Open Courses

“Mobile Interaction Design: How to Design Usable Mobile Products and Services” on Coursera (2017-2022).

Courses Regularly Taught

- User Research (Fall 2021), part of the “UX Design” minor. HSE University. (in Russian)
- Interaction Design & Prototyping (Spring 2022), part of the “UX Design” minor. HSE University. (in Russian)
- Digital Interactive Products Development (2022, 2021, 2020). HSE University.
- Designing for User Experience (Spring 2022, Spring 2021, Spring 2020). HSE University.
- Designing Human-Computer Interaction (Fall 2020/Spring 2021, Fall 2019/Spring 2020). HSE University. (in Russian)
- Interaction Design for AR/VR (2020). HSE University.
- Mobile UI (Fall 2016, Fall 2015). HSE University.
- Designing Human-Computer Interaction (Spring 2015, Spring 2014). MSUT “STANKIN”. (in Russian)

Other Courses

- Interaction Design for AR/VR, university-wide open course (Fall 2019/Spring 2020). HSE University. (in Russian)
- Designing User Interfaces for AR/VR (Spring 2019). HSE University.
- Interaction Design (Fall 2017/Spring 2018). HSE University.
- Development of iOS Applications (Fall 2014/Spring 2015). HSE University. (in Russian)

Workshops

Interaction Design: Exploring Design Space (Nov. 2017, Oct. 2016, Feb. 2016, Oct. 2015). Russian School of Service Design. (in Russian)

Courses that I Helped Teaching as a TA

- Social and Aesthetic Interaction Design (Fall 2023). Aarhus University.
- Advanced Augmented Reality Project (Spring 2024, Spring 2023). Aarhus University.
- Experimental System Development (Spring 2025, Spring 2024, Spring 2023). Aarhus University.
- Programming and algorithmization basics (Spring 2013, Spring 2011). MSUT “STANKIN”. (in Russian)
- Informatics and Programming (Fall 2010, Fall 2009). MSUT “STANKIN”. (in Russian)

6. *Supervision and Mentoring Activities***Co-supervision of PhD Theses**

1. Taylor, K. (in progress). Attention During Locomotion. Lancaster University. Co-supervising with Prof. Hans Gellersen.
2. Patterson, T. (in progress). Content Placement in Augmented Reality for Use While Walking. Lancaster University. Co-supervising with Prof. Hans Gellersen.

Master’s Theses

1. Corentin, J. (in progress). Raycasting On the Go in Virtual Reality. KTH Royal Institute of Technology. Co-supervising with A/Prof. Andrii Matviienko.
2. Csizmadia, T., Roos, M. (2024). Hand Interaction On the Go: Comparing Reference Frames in Augmented Reality. Aarhus University. Co-supervised with A/Prof. Ken Pfeuffer.
3. Baczay, A.S. (2023). Effect of Reference Frames on Interaction with 3D User Interfaces While on the Go. Aarhus University. Co-supervised with A/Prof. Ken Pfeuffer.
4. Repina, A. (2020). Designing and Developing a Prototype for Presenting System Notifications on AR Glasses. HSE University.
5. Dormidontov, S. (2017). Program for Automatic Composition of Shopping List Based on User Preferences Prediction. HSE University.
6. Alorwu, A. (2017). Multi-platform Software System for Synchronous Recording of User Research Data. HSE University.

Bachelor's Theses

1. Tsimbalistaia, U. (2023). Empirical Evaluation of Spatial Shortcuts for Launching App on Augmented Reality Glasses. HSE University. Co-supervised with PDEnd. Vyacheslav Ivanov. *Publication based on this thesis with the student as the first author was accepted to CHI 2025* 🏆
2. Rozhenkov, A. (2023). Studying Hand Interaction with Spatial Interfaces of Augmented Reality Glasses During Walking. HSE University. Co-supervised with PDEnd. Vyacheslav Ivanov
3. Trukhan, E. (2022). Empirical Evaluation of Notification Presentations for Augmented Reality Glasses. HSE University
4. Baidarov, E. (2022). Apartment Access Control System. HSE University.
5. Belaventsev, V. (2021). Android App for Clients of the "Okna Service" Company. HSE University.
6. Seryanin, A. (2021). Backend of Order Management System for "Okna Service" Company. HSE University.
7. Shakirov, T. (2021). Smartphone App for Crafting Spatial Sound Installations. HSE University.
8. Afanasev, N. (2020). Augmented Reality App for Sharing Virtual Presents. HSE University.
9. Margiev, V. (2020). Mobile App with Conversational User Interface for Workout. HSE University.
10. Korosteleva, S. (2016). Design and Development of the "Moscow Parking" Mobile App. MSUT "STANKIN". Co-supervised with Prof. Vyacheslav V. Baranov.
11. Kiripolský, A. (2014). Virtual Keyboard Usability Evaluation on a Touch Screen Device. Masaryk University. Co-supervised with Dr. Martin Dostál.

7. Prizes and Awards

2025	Seal of Excellence, Marie Skłodowska-Curie Postdoctoral Fellowships 2025, European Commission Horizon Europe
October 2023	Best Paper Honorable Mention Award, ACM SUI
2022	Outstanding Educator 2022 , HSE University (salary supplement)
2022	Best course in 'Career Development', 'New Knowledge and Skills' and 'Broadening Horizons and Diversity of Knowledge and Skills' nominations: Designing for User Experience, HSE University
2021	Best course in 'New Knowledge and Skills' and 'Broadening Horizons and Diversity of Knowledge and Skills' nominations: Designing for User Experience, HSE University
2021	Best course in 'Broadening Horizons and Diversity of Knowledge and Skills' nomination: Interaction Design for AR/VR, HSE University
2020	Best course in 'New Knowledge and Skills' and 'Broadening Horizons and Diversity of Knowledge and Skills' nominations: Digital Interactive Products Development, HSE University
2020	Best course in 'Broadening Horizons and Diversity of Knowledge and Skills' nomination: Designing Human-Computer Interaction, HSE University
2020	Best course in 'Career Development' and 'Broadening Horizons and Diversity of Knowledge and Skills' nominations: Interaction Design for AR/VR, HSE University
2011	Winner of the National Contest of Students' Research Papers: Engineering Sciences, 2nd place (stipend supplement)
June 2010	Best Graduate Thesis Award (for my master's thesis), MSUT "STANKIN"
April 2008	Honorable Mention Award, "Applied Informatics and Mathematical Modelling" Student Conference 2008

April 2007	Honorable Mention Award, “Applied Informatics and Mathematical Modelling” Student Conference 2007
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8. *Organization of Conferences & Workshops*

2027	Dagstuhl Seminar on “XR Interaction in Motion” (August 22-25, 2027). Co-organizing with Stefanie Zollmann, Raimund Dachsel, and Mark Billinghurst
2026	Associate Chair, IEEE VRST 2026 Papers
2026	Associate Chair, ACM SUI 2026 Papers
2026	Associate Chair, IEEE ISMAR 2026 Papers
2026	Associate Chair, NordiCHI 2026 Papers
2026	Associate Chair, AlpCHI 2026 Full Papers
2024, 2025, 2026	Program Chair, COGAIN Workshop at ACM ETRA 2024-2026
2025, 2026	Associate Chair, ACM ETRA 2025-2026 Full Papers
2025	PC Member, SIGCHI MUM 2025 Full and Short Papers
2019 – 2021	Section Chair for Computer Science Papers, HSE Student Research Paper Competition
2016, 2021, 2023-2026	Reviewer, ACM CHI
2019-2021, 2024, 2025	Reviewer, IEEE ISMAR
2026	Reviewer, ACM DIS 2026
2025, 2026	Reviewer, ACM UIST
2025	Reviewer, ACM ISS 2025
2025	Reviewer, ACM TEI 2025
2025	Reviewer, ACM VRST 2025
2023	Reviewer, ACM ETRA

9. *Science Communication and Public Outreach*

[Invited Talk] Practical Tips for Improving Gaze-based Interaction On the Go (March 2026). 4th Workshop on Gaze and Eye Movement in Interaction in XR (GEMINI ‘26), co-located with IEEE VR 2026.

[Invited Talk] Interaction During Walking: Why UI Placement Matters for AR Glasses On the Go (April 2026). Dresden Talks on Interaction & Visualization, TU Dresden.

[Invited Talk] Interaction in Motion: Why UI Placement Breaks or Makes On-the-Go AR (November 2025). GIST Seminar, University of Glasgow.

[Panel Discussion] Is this the year of the metaverse? (February 2024). XCB Lab’s Conference, Aarhus University. Together with Adam V. Gordon, Mads Troelsgaard, Kenneth Bruun, and Jason DiPalma.

[Public Lecture] UX Design vs Usability (July 2021). “Applied Cognitive Science” Summer School, HSE University. Together with Vyacheslav Ivanov.

[Public Lecture] Extended reality: how we will interact with computers in the near future (July 2020). VII Summer School on Mobile Development, HSE University (In Russian).

[Public Lecture] Augmented Reality Glasses: user interfaces of modern platforms and prospects for their development (April 2019). Faculty of Computer Science, HSE University (in Russian).

[Article] Glimpse of the Future of Augmented Reality (June 2018). HSE University.

[Conference Talk] Usability problems and their causes (January 2016). *Russian School of Service Design: Winter UX Conference* (in Russian).

[Conference Talk] Interaction design: Exploring design space (October 2015). *9th International Conference "User eXperience 2015"* (in Russian).

[Conference Talk] UX Design: Finding the best solution (September 2015). *Russian School of Service Design: Autumn UX Conference* (in Russian).

[Conference Talk] Answers to awkward questions about usability problems (June 2015). *2nd International Conference "UXPeople 2015"* (in Russian).

[Conference Talk] If you were waiting for the right moment to talk about usability problems - it is the right one (November 2014). *8th International Conference "Russian Interactive Week 2014" (RIW'14)* (in Russian).

[Conference Talk] Redesigning Nalog.ru: a case study (October 2014). *8th International Conference "User eXperience 2014"* (in Russian). Together with Tatyana V. Matveeva.

[Conference Talk] A simple way to describe the complex world: modelling subject domains in UX (November 2013). *7th International Conference "User eXperience 2013"* (in Russian). Together with Vyacheslav Ivanov.

[Conference Talk] Usability testing of mobile applications and websites (April 2013). *5th International Conference "Software People 2013"* (in Russian).

[Conference Talk] The stroke-oriented user interface of mobile devices with touch screen for people with visual impairments (April 2010). *Professional Conference "RIF+KIB 2010"* (in Russian).

[Conference Talk] The stroke-oriented UI for handheld operating systems (October 2009). *3rd International Conference "User eXperience 2009"* (in Russian). Together with Alexey Lybimov.

[Open Lecture] Introduction to User Interface Design (November 2012). MSUT "STANKIN". (in Russian)