

Martin Pluisch

Research Engineer & PhD Candidate in Spatial Computing, Context-Adaptive AR, and Generative AI Interaction

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WORK EXPERIENCE

Research Engineering Intern

04/2026 - 09/2026

Apple Inc. – Vision Products Group

Cupertino, United States

- Designed and built an agent-enhanced spatial and conversational UI for visionOS and iOS
- Researched context sharing between different Apple ecosystem devices accounting for differing I/O constraints
- Designed protocol and analyzed results for IRB-approved study

Doctoral Research Assistant

05/2023 - 04/2026; 10/2026 – present

University of Applied Sciences Bonn-Rhein-Sieg

Bonn, Germany

- Delivering lectures on *Advanced User Interfaces*, primarily AR, to master's students, covering theoretical foundations and practical applications
- Investigating effects of varying environmental and user state contexts in dynamic real-life environments for AR
- Researching adaptive multisensory AR systems that respond to environmental and user-state changes in dynamic real-world settings

Independent Game Developer

11/2017 - present

Personal Projects & Awards

Remote, Germany

- Designed, developed, and released multiple iOS games (C#, Unity Engine)
- *ColorFold* (2018) honored by *Apple Inc.* with “*Game of the Day*” distinction and featured on the global iOS App Store; first version shipped in <4 weeks
- *ColorFold 2* (2019) honored by *Apple Inc.* with “*Our Favorite Puzzle Games*” and “*Great Games from Germany*” distinctions, featured on the global iOS App Store; first version shipped in <3 months
- Partnered with *Voodoo SAS* and *SuperSonic* on 5+ hyper-casual game prototypes for US-market testing, covering concept design, Unity implementation, playtesting, and rapid iteration

Student Assistant

04/2017 - 09/2017

BMW AG & Eberhard Karls University of Tübingen

Tübingen, Germany

- Title: “*End-to-End Data Processing: from the Smartphone to the Cloud*” (Project Grade: 1.0)
- Extended a Java-based Mobility Companion app for Android devices as part of a semester-long project
- Implemented auto-synchronization & data integration of Android app and cloud-based server backend

SKILLS

Programming

C#, Swift, Python, Java, C++, JavaScript, SQL

Tools & Frameworks

Xcode, Unity Engine, OpenCV, Git, MRTK, OpenXR, Claude Code, Codex

Research Areas

Human-Computer Interaction, Spatial Computing, Context-Aware Systems, Multisensory Interfaces, Agentic & Conversational Interfaces, Generative AI

Engineering

Rapid Prototyping, AI-Assisted Development, User Study Design & Analysis

Languages

German (Native), English (CEFR C2 Proficiency)

EDUCATION

Ph.D. in Computer Science

Technical University of Darmstadt

08/2023 – present
Darmstadt, Germany

- Research Focus: *Context-Adaptive AR Interfaces with Multisensory Stimuli Modulation*
- Awarded a three-year scholarship from the faculty of Computer Science, BRSU
- Collaborations & Research Visits:
 - *University College London* (London, United Kingdom) – Simon Julier; Youngjun Cho
 - *Nara Institute of Science and Technology* (Nara, Japan) – Kiyoshi Kiyokawa
 - *Simon Fraser University* (Vancouver, Canada) – Bernhard Riecke
- Academic Service - Peer Reviewing for Conferences & Journals:
 - *IEEE ISMAR, ACM UIST, ACM VRST, Elsevier Computers & Graphics, Eurographics ICAT-EGVE*

M.Sc. in Visual Computing & Games Technology

University of Applied Sciences Bonn-Rhein-Sieg

10/2020 – 12/2022

Bonn, Germany

Grade: 1.1 (German scale, 1.0 = best)

- Thesis: “*Interaction with objects outside the field of view in AR environments*” (Grade: 1.0)
- Relevant coursework: Advanced User Interfaces, Advanced Computer Graphics, Computer Vision

B.Sc. in Media Informatics

Eberhard Karls University of Tübingen

10/2015 – 03/2020

Tübingen, Germany

Grade: 2.0

- Thesis: “*Conceptual design & implementation of a child-oriented mathematical serious game*” (Grade: 1.0)
- Relevant coursework: User Interface Design, Computer Graphics, Digital Image Processing, Algorithms, Theoretical Computer Science, Software Quality

SELECTED PUBLICATIONS

A Multi-Sensor Approach for Cognitive Load Assessment in Mobile Augmented Reality.

In Proceedings of IEEE International Symposium on Mixed and Augmented Reality (IEEE ISMAR '25)

M. Pluisch, J. Gugenheimer, Y. Cho, S. Julier, E. Kruijff

Daejeon, South Korea

- Developed and evaluated a non-contact multisensor pipeline (pupillometry, facial tracking, thermal imaging) for real-time cognitive load inference using XGBoost in mobile AR

Context-Aware Application Recommendations in Augmented Reality.

In ACM Symposium on Spatial User Interaction (ACM SUI '25)

M. Pluisch, J. Gugenheimer, E. Kruijff

Montreal, Canada

- Developed and evaluated an LMM-driven AR system that recommends and auto-switches apps based on semantic scene understanding

Extended Workspace: Techniques for Interaction with Off-Screen Objects in Augmented Reality.

In ACM Symposium on Spatial User Interaction (ACM SUI '25)

M. Pluisch, S. Bateman, A. Hinkenjann, E. Kruijff

Montreal, Canada

- Designed, built, and evaluated three AR interaction techniques enabling off-screen object manipulation beyond the field of view without head movement

Effects of Environmental Noise on Task Performance in Augmented Reality.

In ACM Symposium on Spatial User Interaction (ACM SUI '26)

M. Pluisch, J. Wittke, E. Kruijff

Bari, Italy

- Investigated how visual/auditory environmental noise, task load, and depth placement affect visual search performance and gaze behavior in AR