Arash Goodarzi

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Profile

I am a dedicated interaction designer and full-stack developer with a passion for building and optimizing interactive systems, websites, and applications. My research pertains to understanding how Human-Computer Interaction (HCI), Extended Reality (XR), and Artificial Intelligence (AI) technologies mediate user interactions and experiences. I approach my work through a multidisciplinary lens that integrates computer science and AI with HCI approaches. I am particularly interested in developing innovative interaction techniques within immersive environments, aiming to create solutions that enhance user experience and interaction effectiveness.

Research Interests

Human–Computer Interaction (HCI), HCI Theory, Extended Reality (XR), Interaction Techniques, Gain-Based Interaction, VR/AR Redirection Techniques, Human–AI Interaction (HAII), Artificial Intelligence (AI)

Education

MSc Human-Computer Interaction and User Experience, Umeå University 2023 – 2025
- GPA: Distinction

BSc Computer Engineering (Software), Shiraz Bahonar University 2013 – 2016
- GPA: 3.5/4.0

Technical and Research Skills

Programming & Development: C#, Python, TypeScript, SQL, Node.js, NestJS, ASP.NET Core, React.js
Data & AI: Machine Learning, Reinforcement Learning, Data Analysis & Visualization
XR & Game Engines: Unity Engine, Virtual Reality (VR), Mixed Reality (MR)
Design & Research: Prototyping, UX Research, Mixed-Methods (Qualitative + Quantitative)
Tools & DevOps: Docker, Git, Linux
Soft Skills: Teamwork, Attention to Detail, Critical Thinking, Problem Solving, Creativity

Experience

Teaching Assistant, Umeå University Jan 2024 – Sep 2025
- As a teaching assistant in the Department of Computing Science, I contributed to the following courses, providing lecturing, coding tutoring, grading, and educational content design:
  - Human-Computer Interaction (Autumn 2024)
  - Data Structures and Algorithms (Python) (Spring 2024 & 2025)
  - Interaction Techniques (Spring 2024 & 2025)
  - Development of Mobile Applications (Spring & Summer 2025)
- arashg.dev/teaching

Full-Stack Web Developer, Danish Trading Company Aug 2021 – Dec 2023
- Built a full-scale business management platform from scratch, taking it from prototype to a production system that manages over $1M in monthly sales.
- Integrated sales, marketing, analytics, reporting, billing/invoicing, and inventory management, streamlining operations and enabling data-driven decision-making.
- Technologies: NestJS, React, TypeScript, Chakra UI, MySQL, TypeORM, mTLS, Docker.
- arashg.dev/projects/danish-business-management-platform

Full-Stack Developer & Co-Founder, Grasp Startup Apr 2021 – Aug 2021
- Collaborated with two co-founders to develop an early-stage startup, contributing to product ideation, technical architecture, and documentation.
- Built **Edu-Editor**, a block-based rich text editor prototype for Grasp:
  - github.com/kiaksarg/edu-editor

Software Developer, Vesta System Feb 2016 – Mar 2019
- Built desktop and web applications using C# and ASP.NET Core, including a multilingual news/blog system,

an office automation platform for government services, and a Telegram channel manager desktop application.

- Technologies: ASP.NET Core, Entity Framework, MSSQL/MySQL, Context Per Request, Unit of Work, WinForms.
- Selected projects:
  - arashg.dev/projects/asp-net-multilingual-news-blog-system
  - arashg.dev/projects/automation-platform
  - github.com/kiaksarg/Telegram-Channel-Manager-Desktop

Projects

ViewShift – Interactive and Adaptive Rotation Gains in Seated VR Sep 2025

- Master's thesis (Umeå University): Designed and implemented (Unity, C#) two novel head rotation amplification techniques in VR (user-empowered Interactive & Adaptive).
- Conducted a mixed-methods user study ($N = 31$) using quantitative metrics (completion time, errors, workload, etc.) and qualitative interviews (thematic analysis) to evaluate user experience.
- arashg.dev/viewshift

Alternative Inertial Scrolling Techniques Oct 2025

- Implemented an experimental demo of alternative inertial scrolling techniques (Limited Distance; Limited Distance + Highlight) under the supervision of Prof. Viktor Kaptelinin, based on his inertial scrolling method (US Patent 12,399,610).
- Contributed to the design of the experimental study and developed a React/Next.js frontend and a Node.js backend to assign participant conditions and collect interaction metrics, including scrolling actions (flicks and drags), scrolling distances, and reading time.
- arashg.dev/scrolllab scroll-lab.informatik.umu.se github.com/kiaksarg/scrolllab

Blossom-Buddy Dec 2023

- With a Research through Design (RtD) approach, I developed *Blossom-Buddy*, an interactive flowerpot exploring how technology can shape users' behaviors through empathy and care for living things. It encourages users to achieve their goals and build positive habits by linking task completion to plant well-being.
- Techniques used include User Interviews, User Testing, Experience Prototyping, and the Wizard of Oz.
- arashg.dev/projects/blossom-buddy

Edu-Editor: Block-Based Rich Text Editor Jul 2021

- Built an extensible block-based rich text editor on Slate.js.
- Repository: github.com/kiaksarg/edu-editor, Demo

Awards and Honors

- Winner, course-wide **Artificial Intelligence: Methods & Applications (HT24)** Reinforcement Learning Tournament — Department of Computing Science, Umeå University, Jan 2025.
  Certificate
- Awarded full funding for BSc in Computer Engineering (2013–2016) after ranking 111th out of 27,532 candidates in the Nationwide Bachelor's Entrance Exam (Code 210), National Organization for Educational Testing, Iran.

References

- **Viktor Kaptelinin** — Professor, Department of Informatics, Umeå University
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- **Anders Lundström** — Associate Professor, Department of Informatics, Umeå University
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