




Katharina Krösl

PhD candidate at the Research Unit of Computer Graphics at TU Wien with several years of work and teaching experience. Researcher at the VRVis Zentrum für Virtual Reality und Visualisierung Forschungs-GmbH and freelance VR game developer. Holds a master's degree from TU Wien in Visual Computing. Current research interests include, virtual and augmented reality, perception and medical simulations in XR. Passionate about VR technologies, interdisciplinary research and game development. Voluntary work at conferences and organization of networking events for women in computer science. IEEE Women in Engineering Austria officer / founding member.

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EXPERIENCE

Researcher

VRVis Forschungs-GmbH, Austria

Apr 2016 – Present

- Research on the effects of vision impairments on perception under different lighting conditions.
- Project: XREye: Simulating Eye Diseases and Vision Impairments in Eye-Tracked XR
- Research on luminaire design and lighting design
- Development of an interactive luminaire editor (using OpenCL, photon tracing)
- Project: light-planning software HILITE (C# framework)

Research/University Assistant

Research Unit of Computer Graphics, Institute of Visual Computing & Human-Centered Technology - TU Wien, Austria

Apr 2016 – Mar 2019

- Supervising graduate and undergraduate students
- Researching computational lighting design and simulation of vision impairments in virtual and augmented reality

Visiting Researcher

Computer Graphics and User Interfaces Lab – Columbia University in the City of New, USA

Jun 2018 – Aug 2018 · 3 mo

- Research on simulating eye diseases in VR and AR, using eye tracking

Technical Artist, Project Manager

Black Cell, Austria

May 2016 – Oct 2018 · 2 yrs 6 mo

- Project manager of VR ADHD training simulator for kids (cooperation with children's clinic of the Vienna General Hospital – AKH)
- Gameplay and visual effects programming for VR games
- Integrating Effects of 3D artists into game logic
- Tools: Unreal Engine 4, Cascade, HTC Vive

Teaching Assistant

Research Unit of Computer Graphics, Institute of Visual Computing & Human-Centered Technology - TU Wien, Austria

Oct 2010 – Feb 2015 · 4 yrs 5 mo

- Teaching assistant for the courses: "Introduction to Visual Computing", "Computer Graphics 1", "Computer Graphics 2"
- Giving tutorials, developing exercises, holding exams

Contributing Editor

SLAM magazine, Austria

Oct 2008 – Sep 2014 · 6 yrs

- Reviews of videogames, conference and news coverage
- Reporting on Game Developers Conference Europe 2010-2014

Consulting Database Engineer

Small Arms Survey, Switzerland

May 2011 – Jan 2012 · 9 mo

- Creating database entry forms, programming logic in CSPro

Head of E-Learning Competence Center

University of Applied Sciences Technikum Wien, Austria

Oct 2008 – Jun 2011 · 2 yrs 9 mo

- Support of lecturers with technical implementation of online courses
- Organizing and holding lectures on e-learning platform

EDUCATION

Ph.D. in Computer Science

TU Wien

Apr 2016 – Present

- Topic: "Simulating Vision Impairments in Virtual and Augmented Reality" (working title)
- Estimated graduation date: June 2020
- Supervised by Associate Prof. Dipl.-Ing. Dipl.-Ing. Dr.techn. Michael Wimmer and Ao.Univ.Prof. Dipl.-Arch. Dr.phil. Georg Suter

M.Sc. in Visual Computing

TU Wien

2009 – 2016

- Computer Graphics, visualization, real-time rendering, global illumination
- Graduated with distinction
- Thesis: "Interactive, Progressive Photon Tracing using a Multi-Resolution Image-Filtering Approach"

Master Studies Advanced Computer Graphics

Linköping University, Sweden

2011 – 2012 · 6 mo (Erasmus Exchange Program)

B.Sc. in Media Informatics

TU Wien

2003 – 2009

- Thesis: "Analysis of the Implementation of the Web-Accessibility-Initiative (WAI) Guidelines in Austria"

PUBLICATIONS

Krösl, K., Elvezio, C., Hürbe, M., Karst, S., Feiner, S. and Wimmer, M. "XREye: Simulating Visual Impairments in Eye-Trackled XR" to appear in *2020 Conference on Virtual Reality and 3D User Interfaces (VR)*. IEEE. Research Demos

Preiner, R., Schmidt, J., Krösl, K., Schreck, T., and Mistelbauer, G. "Augmenting Node-Link Diagrams with Topographic Attribute Maps" to appear in *Computer Graphics Forum*, May 2020. (accepted for publication)

Krösl, K., Steinlechner, H., Donabauer, J., Cornel, D. and Waser, J. 2019. "Master of Disaster: Virtual-Reality Response Training in Disaster Management" in *The 17th International Conference on Virtual-Reality Continuum and its Applications in Industry (VRCAI '19)*, November 14–16, 2019, Brisbane, QLD, Australia. ACM, New York, NY, USA 2 Pages.

Katharina Krösl. "Simulating Vision Impairments in VR and AR" in *ACM SIGGRAPH THESIS FAST FORWARD 2019*. June 2019.

Krösl, K., Elvezio, C., Hürbe, M., Karst, S., Wimmer, M. & Feiner, S. (2019, March). "ICthroughVR: Illuminating Cataracts through Virtual Reality" in *2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR)* (pp. 655-663). IEEE.

Schütz, M., Krösl, K., and Wimmer, M. "Real-Time Continuous Level of Detail Rendering of Point Clouds" in *2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*. IEEE, 2019.

Krösl, K., "[DC] Computational Design of Smart Lighting Systems for Visually Impaired People, using VR and AR Simulations" in *Proceedings of the 2018 IEEE International Symposium on Mixed and Augmented Reality (ISMAR Adjunct)*

Krösl, K., Felnhöfer, A., Kafka, J. X., Schuster, L., Rinnerthaler, A., Wimmer, M., & Kothgassner, O. D., "The Virtual Schoolyard: Attention Training in Virtual Reality for Children with Attentional Disorders" in *ACM SIGGRAPH 2018 Posters* (p. 27). ACM.

Krösl, K., Bauer, D., Schwärzler, M., Fuchs, H., Suter, G., Wimmer, M., "A VR-based User Study on the Effects of Vision Impairments on Recognition Distances of Escape-Route Signs in Buildings" in *The Visual Computer* 1-13, 2018

Walch, A., Krösl, K., Luksch, C., Pipp, T., Pichler, D., Schwärzler, M., "An Automated Verification Workflow for Planned Lighting Setups using BIM" in *Proceedings of the 23rd International Conference on Urban Planning and Regional Development in the Information Society GeoMultimedia*, 2018

Krösl, K., Luksch, C., Schwärzler, M., & Wimmer, M. "LiteMaker: Interactive Luminaire Development using Progressive Photon Tracing and Multi-Resolution Upsampling" in *Proceedings of Vision, Modeling & Visualization*, 2017

Krösl, K. "Interactive, Progressive Photon Tracing using a Multi-Resolution Image-Filtering Approach", (Master Thesis) TU Wien, 2016

Labschütz, M., Krösl, K., Aquino, M., Grashäftl, F., & Kohl, S., "Content creation for a 3D game with Maya and Unity 3D" in *CESCG 2011: Proceedings of the 15th Central European Seminar on Computer Graphics*, 2011

SKILLS

computer science computer graphics rendering virtual reality augmented reality eye tracking global illumination lecturing C# Java OpenGL DirectX HLSL GLSL XNA Matlab Unreal Engine 4 Blender

PROFESSIONAL AND SCHOLARLY ACTIVITIES

- Voluntary work at **conferences**:
 - Volunteer Coordinator at PIXELvienna, the Annual Austrian Computer Graphics and Animation Conference 2016, 2017 (Vienna)
 - Volunteer Coordinator at Central European Games Conference 2015 (Vienna)
 - Organizer Team at Central European Seminar on Computer Graphics (CESCG) for students in 2011, 2012, 2013, 2014 and 2015 (Slovakia)
 - Volunteer at Visual Computing Trends Symposium 2011, 2013, 2015 (Vienna)
 - Volunteer at EuroVis 2012 (Vienna)
- Founder of the **Women in Visual Computing @TU Wien** Networking Group
- Senior Member of the **Computer Graphics Club** at the Research Unit of Computer Graphics of the Institute of Visual Computing & Human-Centered Technology at TU Wien
- Founding member and **treasurer** of **IEEE Women in Engineering Austria** since 2017
- Committee member at **Austrian Standards**

HONORS AND AWARDS

- 3rd place at ACM SIGGRAPH Thesis Fast Forward 2019
- Nomination for best conference paper at IEEE VR 2019
- Semi-Finalist at SIGGRAPH Poster Student Research Competition 2018
- Speaker at „Masters in Research: Forschungsorientiertes Studieren als Qualitätsmerkmal der TU Wien“ 2017 at TU Wien
- Nomination for „Distinguished Young Alumnus/Alumna“-Award at EPILOG 2016 of Faculty of Informatics, TU Wien

PERSONAL INFORMATION

- Native in German, fluent in English, basic knowledge of French, Swedish and Japanese
- Date & place of birth: 07. May 1985, Vienna, Austria
- Nationality: Austrian
- Website:
 - <https://www.cg.tuwien.ac.at/staff/KatharinaKroesl.html>
 - <https://www.vrvis.at/members/katharina-kroesl/>
 - <https://xreye.io/>

INTERESTS

virtual and augmented reality HMDs game development computer games traveling volleyball beachvolleyball ballroom dancing