

# Dr. Eduard Zell

Research Group  
Leader

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Several SIGGRAPH publications and the Eurographics PhD Award confirm my strong performance in computer graphics research, numerical optimization and software development (mainly C++ and a bit of Python). In addition, I am familiar with agile methodologies in start-up context, and due to my personal experience and solid understanding of workflows in VFX, games and computer animation, I can even temporarily act in place of the product owner.

SKILLS	Expert	Intermediate
Programming	C++, OpenGL, OpenCL	CUDA, Python, R, CMake
APIs	Qt, FBX, Eigen	GTest, Mel, CPLEX, Alembic
Software	Maya, Hairfarm, GIMP	Unreal Engine, Houdini, 3ds Max, Nuke
Languages	German, English, Russian	Spanish

## EXPERIENCE

since Aug 2020

### Research Group Leader – Germany, Bonn University

4D crop reconstruction

Nov. 2018 – June 2020

### Research Fellow (PostDoc) – Ireland, Trinity College Dublin

- completed two projects on computing the minimal input data for facial animation using discrete optimization (one independent work and one co-supervision of a PhD student)
- co-authoring an extensive tutorial on virtual character perception and interaction (SIGGRAPH & Eurographics)

July 2018 – Oct. 2018

### Researcher – Germany, Berlin

prepared a grant proposal for a self-funded PostDoc

Sept. 2017 – June 2018

### Senior Software Developer – Germany, Trotzkind GmbH, Berlin

developed from scratch a state-of-the-art prototype capable of:

- scan-to-scan alignment (non-rigid registration) for volumetric video
- remeshing, mesh repair and other geometry editing algorithms
- context adapting 4d sequences using semi-automatic rigging algorithms
- FBX and Alembic importer/exporter

Oct. 2010 – Mar. 2018

### Research Assistant and PhD Student – Germany, CITEC Cluster of Excellence, Bielefeld University

- finished PhD with distinction and received EG PhD Award (top 3 in Europe)
- R&D on 3d scanning, editing, animating and rendering virtual faces
- established collaborations with research labs in Spain, Ireland, Korea
- developed custom 3d scan registration software for Adidas
- co-developed an award-winning VR-system for stroke patient rehabilitation
- interdisciplinary research on facial perception of digital characters
- held lectures in game development and real-time rendering

Oct. 2016 – May 2017

### Parental Leave

Nov. 2015 – May 2016	<b>Project Head – Germany/Turkey</b> , SUN start-up network organized with a team a trip consisting of 15 company visits and three networking events to connect with Istanbul's start-up community
June 2013 – Sept. 2013	<b>Visiting Researcher – South Korea</b> , KAIST, Daejeon researched and published work on facial animation retargeting
Aug. 2008 – Aug. 2009	<b>Software/Shader-Developer – Austria</b> , Vizrt, Schwaz coded 3d computer graphics software for TV studios
Sept. 2006 – Feb. 2007	<b>3D-Artist (Internship) – Germany</b> , RTT (now 3DExcite), Munich real-time visualizations for Ferrari, Volkswagen and Audi
June 2004 – Sept. 2004	<b>Clay-Animator (Internship) – Germany</b> , IfNM, Rostock

## EDUCATION

Oct. 2010 – June 2017	<b>PhD in Computer Graphics – Germany</b> , Bielefeld
Sept. 2009 – Aug. 2010	<b>Computer Animation and Visual Effects (MSc) – UK</b> , Bournemouth
Sept. 2005 – Feb. 2009	<b>Computer Science and Media (BSc) – Germany</b> , Furtwangen
Feb. 2008 – July 2008	<b>Software Engineering (study abroad) – Spain</b> , Gijón
June 2004	<b>University-entrance diploma – Germany</b> , Rostock

## SCHOLARSHIPS

July 2013 – Aug. 2013	DAAD-NRF-Summer Institute Program (stay abroad in South Korea)
July 2007 – Aug. 2010	"Evangelisches Studienwerk" (scholarship for outstanding students)
Mar. 2008 – Mar. 2011	e-fellows (scholarship for high-potentials)
Feb. 2008 – July 2008	ERASMUS (stay abroad in Spain)

## AWARDS

May 2019	Eurographics PhD Award (Europe's highest award in computer graphics)
Jan. 2019	Faculty Award for outstanding PhD thesis
Mar. 2015	FameLab NRW (2 <sup>nd</sup> Place) – worldwide science communication competition
Sept. 2013	Eurographics Medical Prize (3 <sup>rd</sup> Place)

## VOLUNTEER

Oct. 2012 – Oct. 2014	coordinator within the alumni network of the "Evangelisches Studienwerk"
2003 – 2008	various volunteer positions (e.g. student representative, youth leader)
Oct. 2004 – June 2005	Civil service (taking care of drug addicted and disabled people), Caritas

## INTERESTS

traveling, ballroom dances, rock climbing, modern art and architecture

## PUBLICATIONS

**From Perception to Interaction with Virtual Characters**, Eduard Zell, Katja Zibrek, Xueni Pan, Marco Gillies, Rachel McDonnell; *Eurographics Tutorial 2020*

**Expression Packing: As-Few-As-Possible Training Expressions for Blendshape Transfer**, Emma Carrigan, Eduard Zell, Rachel McDonnell; *Computer Graphics Forum 39(2)/Eurographics, 2020*

**Perception of Virtual Characters**, Eduard Zell, Katja Zibrek, Rachel McDonnell; *SIGGRAPH Course 2019*.

**The Secret of Appeal - Understanding Perception of Realistic and Stylized Faces**, Eduard Zell, *PhD-Thesis, 2018*.

**Facial Retargeting with Automatic Range of Motion Alignment**, Roger Blanco i Ribera\*, Eduard Zell\*, J. P. Lewis, Junyong Noh, Mario Botsch; *ACM Transaction on Graphics 36(4)/SIGGRAPH, 2017*, (\*equal contribution).

**Differential Effects of Face-Realism and Emotion on Event-Related Brain Potentials and Their Implications for the Uncanny Valley Theory**, Sebastian Schindler\*, Eduard Zell\*, Mario Botsch, Johanna Kissler; *Nature Scientific Reports, 2017, 7, 45003* (\*equal contribution).

**To Stylize or not to Stylize? The Effect of Shape and Material Stylization on the Perception of Computer-Generated Faces**, Eduard Zell, Carlos Aliaga, Adrian Jarabo, Katja Zibrek, Diego Gutierrez, Rachel McDonnell, Mario Botsch; *ACM Transaction on Graphics 34(6)/ SIGGRAPH Asia, 2015*, pp. 184:1-184:12.

**Accurate Face Reconstruction through Anisotropic Fitting and Eye Correction**, Jascha Achenbach, Eduard Zell, Mario Botsch; *Proc. of Vision, Modeling and Visualization, 2015*.

**A Natural Movement Database for Management, Documentation, Visualization, Mining and Modeling of Locomotion Experiments**, Leslie Theunissen, Michael Hertrich, Cord Wiljes, Eduard Zell, Christian Behler, Andre Krause, Holger Bekemeier, Philipp Cimiano, Mario Botsch, Volker Dürr; *Proc. of Living Machines, 2014*, pp. 308-319.

**ElastiFace: Matching and Blending Textured Faces**, Eduard Zell, Mario Botsch; *NPAR '13: Proc. of the Symposium on Non-Photorealistic Animation and Rendering, 2013*, pp. 15-24.

**OctaVis: A Virtual Reality System for Clinical Studies and Rehabilitation**, Eduard Zell, Eugen Dyck, Agnes Kohsik, Philip Grewe, David Flentge, York Winter, Martina Piefke, Mario Botsch; *3rd Place - Dirk Bartz Prize for Visual Computing in Medicine (Eurographics Medical Prize), 2013*, pp. 9-12.

**OctaVis: An Easy-to-Use VR-System for Clinical Studies**, Eugen Dyck, Eduard Zell, Agnes Kohsik, Philip Grewe, York Winter, Martina Piefke, Mario Botsch; *Proc. of Virtual Reality Interaction and Physical Simulation (VRIPHYS), 2012*, pp. 127-136.

**Developing Design Guidelines for Characters from Analyzing Empirical Studies on the Uncanny Valley**, Eduard Zell, Mario Botsch; *Proc. of ACM International Symposium on Facial Analysis and Animation, 2012*, pp. 11:1-2.

## REVIEWER

Symposium on Perception 2019

Eurographics 2018, 2020

Symposium on Computer Animation (SCA) 2018

IEEE VR 2020