

**Tobias Ritschel**

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Born, July 31th, 1978

German

Married

## EDUCATION

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May 2010 — ongoing

**Post-doctoral** researcher at Télécom ParisTech (ENST) / CNRS (LTCI)

December 2009 — March 2010

**Researcher** at the Max-Planck-Institut Informatik, Saarbrücken, Germany

September 2007 — December 2009

**Ph. D. (Dr.-Ing.)** in Computer Science at the Max-Planck-Institut Informatik, Saarbrücken (summa cum laude). Thesis: '*Perceptually-motivated, Interactive Rendering and Editing of Global Illumination*'. Supervisor: Prof. Dr. H.-P. Seidel.

The thesis was awarded the **Eurographics Dissertation Price 2011** (1 of 3) at Eurographics 2011, Llandudno / UK.

May 2001—January 2007

**Diploma (Dipl.-Inf.)** in Computational Visualistics at the University Koblenz-Landau. Thesis: '*Coherent Shadow Maps for Interactive High Quality Illumination*'. Supervisor: T. Grosch and Prof. Dr. S. Müller.

1999—2000

Community service for people with mental disabilities, Wiesbaden

1998

A-level from the Free Waldorf School, Wiesbaden

PUBLICATIONS

Please see <http://www.mpi-inf.mpg.de/~ritschel/> for papers, abstracts and videos.

2011

- <sup>29</sup>**A Perceptual Model of Disparity.** *P. Didyk, T. Ritschel, E. Eisemann, K. Myszkowski, H.-P. Seidel.* ACM Trans. Graph. 30(3) (Proc. SIGGRAPH 2011, Vancouver / Canada).
- <sup>28</sup>**Edge-aware Color Appearance.** *M. H. Kim, T. Ritschel, J. Kautz.* ACM Trans. Graph. 30(2) (Presented at SIGGRAPH 2011, Vancouver / Canada)
- <sup>27</sup>**Computer-suggested Facial Makeup.** *K. Scherbaum, T. Ritschel, M. Hullin, T. Thormählen, V. Blanz, H.-P. Seidel.* Comp. Graph. Forum 30(2) 485–492 (Proc. Eurographics 2011, April 11–15 2011, Llandudno / UK, 2011). (RTT Emerging Technology Contest, 2<sup>nd</sup> price)
- <sup>26</sup>**ManyLoDs: Parallel Many-View Level-of-Detail Selection for Real-Time Global Illumination.** *M. Holländer, T. Ritschel, E. Eisemann, T. Boubekuev.* Comp. Graph. Forum 30(?) (Proc. EGSR 2011, Prague), 2011.
- <sup>25</sup>**Making Imperfect Shadow Maps View-adaptive: High-Quality Global Illumination in Large Dynamic Scenes.** *T. Ritschel, E. Eisemann, I. Ha, H.-P. Seidel.* Comp. Graph. Forum 30(?), 2011. (Presented at EGSR 2011, Prague)
- <sup>24</sup>**Apparent Resolution Enhancement for Animations.** *K. Templin, P. Didyk, T. Ritschel, K. Myszkowski, E. Eisemann, H.-P. Seidel.* Proc. SCCG 2011, April 28–31 2011, Bratislava / Slovakia, 2011. (2<sup>nd</sup> Best Presentation Award)
- <sup>23</sup>**Fast Separable Ambient Occlusion.** *J. Huang, T. Boubekuev, T. Ritschel, M. Holländer, E. Eisemann.* Proc. Eurographics 2011 (Short Paper), April 11–15 2011, Llandudno / UK, 2011.
- <sup>22</sup>**Camera Animation Style Transfer.** *C. Kurz, T. Ritschel, E. Eisemann, T. Thormählen, H.-P. Seidel.* Journal of Virtual Reality and Broadcast. (Invited Article, CVMP Special Issue)

2010

- <sup>21</sup>**Adaptive Image-space Stereo Synthesis.** *P. Didyk, T. Ritschel, E. Eisemann, K. Myszkowski, H.-P. Seidel.* Proc. VMV 2010, November 15–17 2010, Siegen / Germany. (Cover Image Informatik Spektrum 33 (5), 2010, Springer)
- <sup>20</sup>**Camera Animation Style Transfer.** *C. Kurz, T. Ritschel, E. Eisemann, T. Thormählen, H.-P. Seidel.* Proc. CVMP 2010, November 17–18 2010, London / UK. (Oral)
- <sup>19</sup>**Interactive, On-surface Signal Deformation.** *T. Ritschel, T. Thormählen, J. Kautz, C. Dachsbacher, H.-P. Seidel.* ACM Trans. Graph., 29(3) (Proc. SIGGRAPH 2010, Los Angeles).

- <sup>18</sup>**Apparent Display Resolution Enhancement for Moving Images.** *P. Didyk, E. Eisemann, T. Ritschel, K. Myszkowski, H.-P. Seidel.* ACM Trans. Graph., 29(3) (Proc. SIGGRAPH 2010, Los Angeles).
- <sup>17</sup>**Perceptually-motivated Real-time Temporal Upsampling of 3D Content for High-refresh-rate Displays.** *P. Didyk, E. Eisemann, T. Ritschel, K. Myszkowski, H.-P. Seidel.* Comp. Graph. Forum 29 (2) 713–722 (Proc. Eurographics 2010. Norrköping / Sweden. May 3–7, 2010).
- 2009
- <sup>16</sup>**Micro-Rendering for Scalable, Parallel Final Gathering.** *T. Ritschel, T. Engelhardt, T. Grosch, H.-P. Seidel, J. Kautz, C. Dachsbacher.* ACM Trans. Graph., 28(5) (Proc. SIGGRAPH Asia 2009, Yokohama).
- <sup>15</sup>**Interactive Reflection Editing.** *T. Ritschel, M. Okabe, T. Thormählen, H. P. Seidel.* ACM Trans. Graph., 28(5) (Proc. SIGGRAPH Asia 2009, Yokohama). (Cover Image Informatik Spektrum 33(2), 2010, Springer)
- <sup>14</sup>**Real-time Indirect Illumination with Clustered Visibility.** *Z. Dong, T. Grosch, T. Ritschel, J. Kautz, H.-P. Seidel.* Proc. VMV 2009, Braunschweig / Germany.
- <sup>13</sup>**Perceptual Influence of Approximate Visibility in Indirect Illumination.** *I. Yu, A. Cox, M. H. Kim, T. Ritschel, T. Grosch, C. Dachsbacher, J. Kautz.* ACM Trans. Applied Perception (Presented at APGV 2009, Chania / Crete).
- <sup>12</sup>**Approximating Dynamic Global Illumination in Image Space.** *T. Ritschel, T. Grosch, H.-P. Seidel.* Proc. ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games 2009 (I3D). Boston / MA, February 30–March 1.
- <sup>11</sup>**Temporal Glare: Real-Time Dynamic Simulation of the Scattering in the Human Eye.** *T. Ritschel, M. Ihrke, J.R. Frisvad, J. Coppens, K. Myszkowski, H. P. Seidel.* Comp. Graph. Forum 28 (2): 183–192 (Proc. Eurographics 2009, Munich).
- <sup>10</sup>**A Perceptual Evaluation of 3D Unsharp Masking.** *M. B. Ihrke, T. Ritschel, K. Smith, T. Grosch, K. Myszkowski, H.-P. Seidel.* Proc. Human Vision and Electronic Imaging XIV (SPIE 7240), San Jose / CA.
- 2008
- <sup>9</sup>**Imperfect Shadow Maps for Efficient Computation of Indirect Illumination.** *T. Ritschel, T. Grosch, M.-H. Kim, H.-P. Seidel, C. Dachsbacher, J. Kautz.* ACM Trans. Graph., 27(5) (Proc. SIGGRAPH Asia 2008, Singapore).
- <sup>8</sup>**3D Unsharp Masking for Scene Coherent Enhancement.** *T. Ritschel, K. Smith, M. Ihrke, T. Grosch, K. Myszkowski, H.-P. Seidel.* ACM Trans. Graph., 27(3) (Proc. SIGGRAPH 2008, Los Angeles).

**<sup>7</sup>Interactive Global Illumination Based on Coherent Surface Shadow Maps.** *T. Ritschel, T. Grosch, J. Kautz, H.-P. Seidel.* Proc. Graphics Interface 2008. Windsor / Canada, May 28—30.

2007

**<sup>6</sup>Interactive Illumination with Coherent Shadow Maps.** *T. Ritschel, T. Grosch, J. Kautz, S. Müller.* Proc. Eurographics Symposium on Rendering 2007 (EGSR). Grenoble / France, June 25—27.

**<sup>5</sup>Fast GPU-based Visibility Computation for Natural Illumination of Volume Data Sets.** *T. Ritschel.* Short Paper Proc. Eurographics 2007. Prague, September 3—7.

2006

**<sup>4</sup>On-line Estimation of Diffuse Materials.** *T. Ritschel, T. Grosch.* Proc. 3. GI-Fachtagung VR/AR. Koblenz / Germany, September 25—26. (Awarded 2<sup>nd</sup> best paper)

**<sup>3</sup>Multiresolution GPU Mesh Painting.** *T. Ritschel, M. Botsch, S. Müller.* Short Paper Proc. Eurographics 2006. Vienna, September 4—8.

2005

**<sup>2</sup>The Eduventure – A New Approach of Digital Game Based Learning Combining Virtual and Mobile Augmented Reality Games Episodes.** *P. Ferdinand, S. Müller, T. Ritschel, U. Wechselberger.* Proc. DeLFI 2005 / GMW 2005. Rostock / Germany, September 13—14.

**<sup>1</sup>Physikalische Simulation virtueller Charaktere durch Feder-Masse-Systeme am Beispiel einer "Virtuellen Marionette".** *T. Ritschel, S. Müller.* Proc. 2. GI-Fachtagung VR/AR. Aachen, September 26—27. (Awarded 3<sup>rd</sup> best paper, German)

#### Book chapters

**<sup>B2</sup>Exceeding Physical Limitations: Apparent Display Qualities.** *P. Didyk, K. Myszkowski, T. Ritschel, E. Eisemann.* Perceptual Digital Imaging: Methods and Applications, CRC Press, 2012 (Conditionally accepted)

**<sup>B1</sup>Screen-Space Directional Occlusion.** *T. Grosch, T. Ritschel.* GPU Pro, AK Peters, 2010

#### Talks

**<sup>T6</sup>Fakeup: Computer-suggested Facial Makeup.** *K. Scherbaum, T. Ritschel, M. Hullin, T. Thormählen.* FMX ICC, May 6<sup>th</sup>, Stuttgart / Germany, 2011.

**<sup>T5</sup>Interactive On-Surface signal deformation.** GT Rendu, October 8, Paris / France, 2010. (Conference talk)

**<sup>T4</sup>Perceptually-motivated, Interactive Rendering, Intuitive Editing and Display of 3D content.** Black Rock Studios Render Club, September 9, Brighton / UK, 2010. (Invited talk)

<sup>T3</sup>**A Question of Time: Importance and Possibilities of High Refresh-rates.**  
*P. Didyk, E. Eisemann, T. Ritschel, K. Myszkowski, H.-P. Seidel*, Visual Computing Research Conference, December 8–10, Saarbrücken / Germany, 2009. (Conference talk)

<sup>T2</sup>**Efficient, Physically Plausible and Perceptually Justified High-Quality-Illumination: What was Done Before and What Needs to be Done?** Crytek Conference 2010, November 26–27, Frankfurt am Main / Germany, 2010. (Invited talk)

<sup>T1</sup>**Perception-Based, Efficient Real-Time Graphics: (GPU)-Rendering of Lights and Shadows You Really See.** DTU Vision Days '09, Copenhagen / Denmark, May 29, 2009. (Keynote)

Talks at KIT / U. Karlsruhe, UCL / London, Paris Tech / CNRS, ARTIS Grenoble / INRIA, VISUS / U. Stuttgart and the RWTH Aachen.

#### Installations

**Virtual Puppet** (Paper 1), at IEEE VR 2005, Bonn; now permanently at the Cybernarium Darmstadt, Germany.

#### Teaching

Lecture '**Soft Shadows**' ('09) and '**Geometry**' ('07) for the advanced computer graphics course at the University Koblenz-Landau

## WORK EXPERIENCE

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### Academia

Reviewing for ACM SIGGRAPH 2009 — 2011, ACM SIGGRAPH Asia 2009 — 2011, Eurographics 2008 — 2011, Pacific Graphics 2009—2011, Graphics Interface 2010, IEEE TVCG 2011, The Visual Computer 2010, IEEE Vis 2009 and 2011, EGSR 2009 and 2010, IEEE Raytracing 2008, Computer Graphics & Applications 2010, WSCG 2008—2011, SCCG 2008, Graphicon 2008 and 2009.

### Industry

*May 2007 — September 2007*

Research and development for Skymatter's Mudbox 2009, a digital sculpting software used in feature films like King Kong, acquired by Autodesk in 2007.

*March 2005 — December 2006*

Student assistant in computer graphics University Koblenz-Landau.

*2000 — 2005*

Freelancing. 3d programming and animation, web programming, graphics design. Clients include Antwerpes AG, Artec Messebau, Chairios, Rendoscopy AG, Software Academy, Serious Magic, and 2SE Wiesbaden.

1999—2000

Database programming for Software Academy, Wiesbaden.

### Demoscene

1997—2004

Active in the demo scene ([www.scene.org](http://www.scene.org)). Co-founded and organized the demo group Kolor ([www.kolor.org](http://www.kolor.org)). Brought together programmers, artists and musicians from many different countries to create demos. Took part in organizing several demo parties, chaired competitions, designed flyers, posters and clothing.

## DEMOS

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Please see Kolor's webpage [www.kolor.org](http://www.kolor.org) for the binaries, screenshots or videos and further information.

**Relais** – PC Demo, 2<sup>nd</sup> at Breakpoint 2003.

*Most important demo competition in that time. Scene.org award "Best Graphics" 2003. Selected for screening at Ars Electronica 2005.*

**Gracchus** – PC 4k Demo, 1<sup>st</sup> at Evoke 2002.

*Scene.org nomination for Best 4k 2002.*

**Le Petit Prince** – PC Demo, 1<sup>st</sup> at Mekka / Symposium 2001.

*Most important demo competition in that time.*

**Fresnel** – 64k Demo, 1<sup>st</sup> at Dialogos 1999.

*First demonstration of hardware-accelerated real-time ray-tracing.*

Overall 3d programming and graphics for 20 productions with Kolor and others, since 1997. Many of them had press and television coverage and screenings at several international film and animation festivals.

## SKILLS

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C++, C#, x86 Assembler, OpenGL, GLSL, CUDA, OpenCL, Cg, PHP, HTML, SQL, Delphi, 3ds max, Blender, After Effects, Photoshop, Illustrator, LaTeX, Office

## PERSONAL

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Long distance running, hiking, cooking, fine arts, arts history, travelling.