

# Jaroslav Krivánek

Matematicko-fyzikální fakulta UK  
Malostranské náměstí 25  
118 00 Praha 1, Czech Republic

phone: +420 776 798 012  
e-mail: jaroslav.krivanek@mff.cuni.cz  
<http://cg.mff.cuni.cz/~jaroslav/>

---

<b>CURRENT POSITION</b>	05/2013 – present	<b>Charles University Prague, Faculty of Mathematics and Physics</b> Associate professor.
	07/2014 – present	<b>Render Legion, a.s.</b> Co-founder, Chief Science Officer.
<b>WORK EXPERIENCE</b>	08/2011 – 04/2013	<b>Charles University Prague, Faculty of Mathematics and Physics</b> Assistant professor.
	03/2013 – 06/2013 (4 months)	<b>Weta Digital, New Zealand</b> Visiting professor.
	07/2012 – 09/2012 (2 months)	<b>Disney Research Zurich, Switzerland</b> Research consultant.
	06/2012 (1 month)	<b>University of Rennes 1 (IRISA – INRIA Rennes)</b> Visiting professor.
	06/2011 (1 month)	<b>University of Rennes 1 (IRISA – INRIA Rennes)</b> Visiting professor.
	08/2010 – 07/2011	<b>Charles University Prague, Faculty of Mathematics and Physics</b> Marie Curie research fellow.
	08/2008 – 07/2010	<b>Cornell University, Department of Computer Science</b> Marie Curie research fellow.
	11/2007–12/2007 (2 months)	<b>Sony Pictures Imageworks</b> Consultant.
	2006 – 07/ 2008	<b>Czech Technical University in Prague</b> Assistant professor / researcher.
	2003 – 2005 (13 months)	<b>University of Central Florida</b> Visiting researcher.
	1999 – 2000 (14 months)	<b>Seznam.cz</b> Software developer.
<b>EDUCATION</b>	2001 – 2005	<b>INRIA Rennes, France – Czech Technical University in Prague, Czech Rep.</b> Ph.D. in Computer Science, Computer Graphics - Image Synthesis Thesis title: “Radiance Caching for Global Illumination Computation on Glossy Surfaces”
	1995 – 2001	<b>Czech Technical University in Prague, Faculty of Electrical Engineering</b> Master in Computer Science and Engineering, Computer Graphics (Czech title: Ing.) Thesis title: “Modern Algorithms for Image Synthesis.”
<b>AWARDS</b>	2014	<b>#NE100 challenger</b> “List of outstanding challengers who are leading world-class innovation from Central and Eastern Europe,” awarded by Res Publica together with the Visegrad Fund, Google and Financial Times.
<b>FUNDING</b>	2016 – 2018	<b>Czech Science Foundation (GAČR)</b> Adaptive sampling and Markov chain Monte Carlo methods in light transport simulation
	2015 – 2018	<b>European Commission – Innovative Training Networks (H2020)</b> DISTRO: Distributed 3D Object Design

2013 – 2015	<b>Czech Science Foundation (GAČR)</b> Robust and Efficient Light Transport Simulation in Arbitrary Environments
2008 – 2011	<b>European Commission – Marie Curie International Outgoing Fellowship</b> CGI-for-Film: Controllable Global Illumination for Film Production
2003	<b>FRVŠ – Ministry of Education of the Czech Republic</b> Perceptually Driven Rendering of Geometric Objects
2002	<b>FRVŠ – Ministry of Education of the Czech Republic</b> Geometry Modeling with Point Samples

## TEACHING EXPERIENCE Courses

### Computer Graphics for Game Development

Spring 2016 – 2017 Charles University, co-teaching

### Computer Graphics III

Fall 2010 – 2016 Charles University, teaches the course

### Selected Topics in Global Illumination

Spring 2011, 2012, Charles University, started and was teaching the course

### Algorithms for Computer Graphics

Fall 2007, Czech Technical University, co-taught the course

### Realistic Image Synthesis

Spring 2007, Czech Technical University, started and taught the course

### Computer Graphics Algorithms

Fall 2006, Czech Technical University, served as teaching assistant

### Multimedia and Virtual Reality

Spring 2005, Czech Technical University, served as teaching assistant

### Introduction to Programming

Spring 2001, Spring 2002, Czech Technical University, served as teaching assistant

## Seminars

### Special Seminar in Computer Graphics

Fall & Spring 2010 – 2017 Charles University, seminar organizer

### Seminar on Scientific Soft Skills

Spring 2012, 2014, 2016 Charles University, seminar organizer and teacher

## STUDENT SUPERVISION Ph.D. theses

Petr Vévoda, *Advanced Monte Carlo methods in Image Synthesis*, 10/2015 – ongoing.

Ivo Kondapaneni, *Efficient Rendering of Complex Environments*, 10/2015 – ongoing.

Oskár Elek, *Realistic rendering for distributed 3D fabrication processes*, 06/2015 – ongoing.

Martin Kahoun, *Procedural generation of computer graphics content*, 10/2013 – ongoing.

Martin Šik, *Modeling and rendering of complex fiber structures*, 10/2012 – ongoing.

Jan Beneš, *Content creation for computer graphics*, 10/2011 – ongoing.

Ondřej Karlík, *Efficient Image Synthesis Algorithms*, 10/2011 – ongoing (currently interrupted)

**Jiří Vorba**, *Adjoint-Driven Importance Sampling in Light Transport Simulation*, 10/2011 – 06/2017  
(graduated, now at Weta Digital)

**Václav Gassenbauer**, *Exploiting Coherence for Efficient Global Illumination Computation*, 03/2007 – 12/2012  
(graduated)

### Team project - Charles University

8 students, *Stubble - A hair modeling system*, 03/2011 – 01/2012.

### Diploma theses - Charles University

Jakub Šťasta, *Image Denoising Using Weighted Local Regression*, 05/2015 – 07/2017

Michal Wirth, *Advanced HDR image viewer*, 05/2015 – 01/2017.

Martin Bulant, *GPU implementation of the irradiance a radiance caching algorithms*, 03/2012 – 12/2014.

Petr Vévoda, *Robust light transport simulation in participating media*, 10/2013 – 12/2014  
(**3<sup>rd</sup> place award – ACM Student project of the Year 2015**)

Čestmír Houška, *Efficient visibility calculation for light transport simulation in participating media*,  
10/2012 – 08/2013.

Matej Marko, *Sound simulation of granular materials*, 11/2011 – 08/2013.

Dalibor Frivaldský, *Fast implementation of procedural texturing*, 11/2010 – 08/2013.

Tomáš Svoboda, *Realistic hair rendering in Autodesk Maya*, MFF UK, 05/2012 – 09/2012.

Martin Šik, *Hair interpolation*, 11/2010 – 09/2012.

Martin Růžička, *Design and evaluation of a user interface for cinematic lighting*, 09/2010 – 02/2012.

Jiří Václavík, *CSG modeling for polygonal objects*, 11/2010 – 02/2012.

Jiří Vorba, *Optimal strategy for connecting light paths in bidirectional methods*, 09/2010 – 06/2011.  
(**2<sup>nd</sup> place award – ACM Student project of the Year 2011, Best paper – CESC 2011**)

### **Diploma theses - Czech Technical University**

Petr Liška, *Image-based shape modification*, 09/2009 – 04/2010.

Martin Dušek, *Efficient rendering of hair and fur*, 09/2007 – 04/2008.

Jiří Štěpín, *Interactive relighting of cinematic scenes*, 09/2007 – 04/2008.

Petr Minařík, *A User-Friendly Editor for 3D Worlds*, 09/2006 – 06/2007.

Jiří Formánek, *Non-linear Representation of Light Transport*, 09/2006 – 06/2007.

Václav Gassenbauer, *Environment Mapping on Glossy Objects Using Wavelets*, 02/2006 – 02/2007.

Jan Ondřej, *Analytical Model for Light Scattering in Participating Media*, 02/2006 – 02/2007.

### **Bachelor theses - Charles University**

Štěpán Hojdar, *Corona Scatter: Procedural placement of 3D objects*, MFF UK, 05/2016 – 06/2017

Aleš Krivák, *Integration of the Corona renderer into the Cinema 4D software*, 04/2015 – ongoing

Tomáš Šváb, *Real-time global illumination computation*, 11/2012 – 06/2014.

Jan Čermák, *Procedural generation of human skin structure*, 11/2012 – 06/2014.

Tomáš Skřivan, *3D Texture deformation according to a polygonal model*, 12/2011 – 06/2014.

Ivan Kuckir, *Data structures for rendering non-polygonal geometry*, 11/2012 – 07/2013.

### **Bachelor theses - Czech Technical University**

Peter Krištof, *Water Erosion using Smoothed Particle Hydrodynamics*, 09/2007 – 06/2008.  
(**results published in Computer Graphics Forum, vol. 28, no. 2., pp. 219–228, 2009**)

Hana Trusková, *Digital reconstruction of Celtic Oppida*, 09/2007 – 04/2008.

Radek Bien, *Terrain reconstruction from contour maps*, 09/2007 – 04/2008.

Jan Štěpánosvký, *Semi-automatic extraction of contour-lines from scanned maps*, 09/2007 – 06/2008.

Lubomír Rezek, *3D Data Conversion*, 03/2007 – 04/2008.

Ondřej Klučka, *Level-of-detail in OpenGL*, 03/2006 – 04/2008.

Michal Černohorský, *Rendering of Topographic Vector Maps for the GPS Navigation*, 03/2007 – 06/2007.

## **PROFESSIONAL EDITORIAL BOARD**

### **ACTIVITIES**

Computer Graphics Forum (2014 – ongoing), Computer Science Review (2013 – 2015)

### **Program committee**

2018: EUROGRAPHICS State of the art reports

2016: EGSR, 4th CIE Expert Symposium on Colour and Visual Appearance, EUROGRAPHICS tutorials,  
EUROGRAPHICS State of the art reports

2015: ACM SIGGRAPH, EUROGRAPHICS, EUROGRAPHICS Short papers, CAD/Graphics, GRAPP.

2014: SCCG, CAD/Graphics, GRAPP, WSCG.

2013: EGSR, I3D, SCCG, WSCG, CAD/Graphics.

2012: EGSR, I3D, ACM SIGGRAPH Asia Technical Briefs, SCCG, WSCG.

2011: EGSR, SCCG.

2010: Pacific Graphics.

2009: EGSR, ACM SIGGRAPH Asia Sketches, Eurographics posters.

2008: EGSR.

2007: EGSR.

(EGSR = Eurographics Symposium on Rendering; I3D = ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games; SCCG = Spring Conference on Computer Graphics, WSCG = International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision; CAD/Graphics = International Conference on Computer-Aided Design and Computer Graphics; GRAPP = International Conference on Computer Graphics Theory and Applications.)

### **Organizing committee**

Eurographics 2007; Eurographics Symposium on Rendering 2011; HiVisComp 2014 - 2016.

### **Reviewing for journals**

ACM Transactions on Graphics, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Visualization and Computer Graphics, Computer Graphics Forum, SPIE Journal of Electronic Imaging, The Visual Computer, Computers & Graphics, Computer Animation and Virtual Worlds.

### **Habilitation and Ph.D. committee membership**

Radomír Vávra, ČVUT Praha, FIT, 2017 (Ph.D., thesis reviewer)

Jan Kolomazník, Charles University in Prague, 2017, (Ph.D., committee vice-chair)

Jan Horáček, Charles University in Prague, 2017, (Ph.D., committee vice-chair)

Barbora Kozlíková, Masaryk University Brno, 2017, (habilitation, committee member)

Jiří Matela, Masaryk University Brno, 2017, (Ph.D., committee member)

Tomáš Davidovič, University of Saarland, Germany, 2016, (Ph.D., examiner)

Adam Sporcka, Czech Technical University in Prague, 2016, (habilitation, committee member)

Juraj Moško, Charles University in Prague, 2016, (Ph.D., committee vice-chair)

Václav Krajíček, Charles University in Prague, 2015, (Ph.D., committee chair)

Petr Kmoch, Charles University in Prague, 2015, (Ph.D., committee chair)

Adrian Jarabo, University of Zaragoza, 2015, (Ph.D., committee chair)

Adrien Gruson, INRIA Rennes/Université de Rennes 1, 2015 (Ph.D., committee member)

Marek Vinkler, VUT Brno, 2015 (Ph.D., committee member)

Daniel Sýkora, ČVUT Praha, 2014 (habilitation, committee member)

Eric Heitz, INRIA Grenoble, 2014 (Ph.D., committee member)

## **PRESENTATIONS Invited Talks**

CESCG (04/2016); TEDx Prague (06/2014); Academy of Sciences of the Czech Republic (01/2013); IRISA Rennes (06/2011, 06/2012); Max-Planck-Institut Informatik (03/2011); Karlsruhe Institute of Technology (03/2011); Czech Technical University (11/2010); INRIA Rhones-Alpes (03/2010).

### **Tutorials**

*Recent Advances in Light Transport Simulation: Some Theory and a Lot of Practice*, ACM SIGGRAPH 2013

*Path Integral Methods for Light Transport Simulation: Theory & Practice*, EUROGRAPHICS 2013

*Recent Advances in Light Transport Simulation: Theory and Practice*, ACM SIGGRAPH 2013

*Optimizing Realistic Rendering with Many-Light Methods*, ACM SIGGRAPH 2012.

*Global Illumination Across Industries*, ACM SIGGRAPH 2010.

*Practical Global Illumination with Irradiance Caching*, ACM SIGGRAPH 2008.

*Practical Global Illumination with Irradiance Caching*, ACM SIGGRAPH 2007.

## **PUBLICATIONS** See Appendix.

**LANGUAGES** Czech (native), English (fluent), French (advanced), German, Russian (basics).