

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://cgg.mff.cuni.cz/~jaroslav/>

CURRENT POSITION	05/2013 – present	Charles University Prague, Faculty of Mathematics and Physics Associate professor.
	07/2014 – present	Render Legion, a.s. Co-founder, Member of the Board, Director of Research.
WORK EXPERIENCE	08/2011 – 04/2013	Charles University Prague, Faculty of Mathematics and Physics Assistant professor.
	03/2013 – 06/2013 (4 months)	Weta Digital, New Zealand Visiting professor.
	07/2012 – 09/2012 (2 months)	Disney Research Zurich, Switzerland Research consultant.
	06/2012 (1 month)	University of Rennes 1 (IRISA – INRIA Rennes) Visiting professor.
	06/2011 (1 month)	University of Rennes 1 (IRISA – INRIA Rennes) Visiting professor.
	08/2010 – 07/2011	Charles University Prague, Faculty of Mathematics and Physics Marie Curie research fellow.
	08/2008 – 07/2010	Cornell University, Department of Computer Science Marie Curie research fellow.
	11/2007–12/2007 (2 months)	Sony Pictures Imageworks Consultant.
	2006 – 07/ 2008	Czech Technical University in Prague Assistant professor / researcher.
	2003 – 2005 (13 months)	University of Central Florida Visiting researcher.
	1999 – 2000 (14 months)	Seznam.cz Software developer.
	EDUCATION	2001 – 2005
1995 – 2001		Czech Technical University in Prague, Faculty of Electrical Engineering Master in Computer Science and Engineering, Computer Graphics (Czech title: Ing.) Thesis title: “Modern Algorithms for Image Synthesis.”
AWARDS	2014	#NE100 challenger “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.
FUNDING	2016 – 2018	Czech Science Foundation (GAČR) Adaptive sampling and Markov chain Monte Carlo methods in light transport simulation
	2015 – 2018	European Commission – Innovative Training Networks (H2020) DISTRO: Distributed 3D Object Design

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

TEACHING EXPERIENCE Courses

Introduction to Computer Graphics (English track)

Winter 2018, Charles University, co-teaching

Computer Graphics for Game Development

Spring 2016 – 2018 Charles University, co-teaching

Computer Graphics III

Fall 2010 – 2018 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 – 2019 Charles University, seminar organizer

Seminar on Scientific Soft Skills

Spring 2012, 2014, 2016, 2019 Charles University, seminar organizer and teacher

STUDENT SUPERVISION Ph.D. theses

Thomas Nindel, *Predictive Rendering in Wood Manufacturing*, 10/2018 – ongoing.

Martin Mirbauer, *Artificial intelligence in content creation for 3D computer graphics*, 10/2018 – ongoing.

Asen Atanasov, *Material appearance modeling for realistic rendering*, 10/2017 – ongoing.

Oskár Elek, *Realistic rendering for distributed 3D fabrication processes*, 10/2015 – ongoing.

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

Martin Mirbauer, *Evaluation of Dynamic Range Reconstruction Approaches and a Mobile Application for HDR Photo Capture*, 09/2017 – 09/2018.

Jakub Šřasta, *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 Věvoda, *Robust light transport simulation in participating media*, 10/2013 – 12/2014

(3rd 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.

(2nd place award – ACM Student project of the Year 2011, Best paper – CESCg 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 Křivák, *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 Křištof, *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.

Ondrej 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 – 2017), Computer Science Review (2013 – 2015)

Program committee

2019: EUROGRAPHICS technical papers, GRAPP Area Chair (Rendering)

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

International Conference on Graphics and Interaction (ICGI, 11/2018), Journées Françaises d'Informatique Graphique (J-FIG, 11/2018), Total Chaos (05/2018); Prague Computer Science Seminar (10/2017); PIXEL Vienna (09/2017); CESC (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).