

CONTACT INFORMATION	Department of Computer Graphics and Interaction Faculty of Electrical Engineering Czech Technical University in Prague Karlovo náměstí 13, 121 35 Prague 2, CZ	<i>phone:</i> +420 2 2435 7501 <i>fax:</i> +420 2 2435 7556 <i>e-mail:</i> sykorad@fel.cvut.cz <i>www:</i> dcgi.fel.cvut.cz/~sykorad
BIOGRAPHY	Born Prague, 29th August 1978. Married wife: Pavla (*1973), daughters: Jolana (*2010), Štěpánka (*2005), step-sons: Matyáš (*1996), Mikuláš (*1993).	
EDUCATION	Czech Technical University in Prague Ph.D., Computer Science and Engineering, March 2007. M.Sc., Computer Science and Engineering, March 2003.	
ACADEMIC EXPERIENCE	Czech Technical University in Prague <i>Associate Professor</i> <i>Assistant Professor</i> <i>Research Fellow</i>	December 2014 – present October 2010 – November 2014 January 2006 – February 2008
	Trinity College Dublin <i>Postdoctoral Research Fellow</i>	July 2008 – July 2010
PROFESSIONAL EXPERIENCE	Walt Disney Animation Studios <i>Visiting Researcher</i> <i>Graduate Associate</i>	July 2014 – September 2014 July 2010 – September 2010
	AniFilm, s.r.o. <i>Research & Development</i>	February 2008 – June 2008
	Digital Media Production, a.s. <i>Research & Development</i>	July 2001 – February 2008
CONSULTING	Universal Production Partners, a.s. Disney Research Zurich Walt Disney Animation Studios	September 2012 – present October 2011 – October 2015 October 2010 – November 2015
AWARDS	The Neuron Award for Promising Young Scientists , Neuron, May 2017. Best Paper Award , NPAR, August 2011. Best Poster Award , NPAR, June 2010. Günter Enderle Best Paper Award , Eurographics, May 2010. Outstanding dissertation , CTU in Prague, September 2007. ACM Student , Czech ACM & Microsoft, November 2003.	
JOURNAL PUBLICATIONS	J. Fišer, O. Jamriška, D. Simons, E. Shechtman, J. Lu, P. Asente, M. Lukáč, and D. Sýkora: Example-Based Synthesis of Stylized Facial Animations . To appear in <i>ACM Transactions on Graphics</i> 36(4), 2017 (SIGGRAPH, Los Angeles, USA, August 2017), Patent pending . M. Dvorožník, P. Bénard, P. Barla, O. Wang, and D. Sýkora: Example-based Expressive Animation of 2D Rigid Bodies . To appear in <i>ACM Transactions on Graphics</i> 36(4), 2017 (SIGGRAPH, Los Angeles, USA, August 2017). M. Lukáč, D. Sýkora, K. Sunkavalli, E. Shechtman, O. Jamriška, N. Carr, and T. Pajdla: Nautilus: Recovering Regional Symmetry Transformations for Image Editing . To appear in <i>ACM Transactions on Graphics</i> 36(4), 2017 (SIGGRAPH, Los Angeles, USA, August 2017), Patent pending . J. Fišer, O. Jamriška, M. Lukáč, E. Shechtman, P. Asente, J. Lu, and D. Sýkora: StyLit: Illumination-Guided Example-Based Stylization of 3D Renderings . In <i>ACM Transactions on Graphics</i> 35(4):92, 2016 (SIGGRAPH, Anaheim, USA, July 2016), Patent pending .	

J. Fišer, P. Asente, S. Schiller, and D. Sýkora: **Advanced Drawing Beautification with Ship-Shape**. In *Computers & Graphics* 56:46–58, 2016 (SBIM'15, Istanbul, Turkey, June 2015), **Patent pending**.

M. Lukáč, J. Fišer, P. Asente, J. Lu, E. Shechtman, and D. Sýkora: **Brushables: Example-Based Edge-Aware Directional Texture Painting**. In *Computer Graphics Forum* 34(7):257–268, 2015 (PG'15, Beijing, China, October 2015), **Patent pending**.

O. Jamriška, J. Fišer, P. Asente, J. Lu, E. Shechtman, and D. Sýkora: **LazyFluids: Appearance Transfer for Fluid Animations**. In *ACM Transactions on Graphics* 34(4):92, 2015 (SIGGRAPH, Los Angeles, USA, August 2015), **Patent pending**.

J. Tan, M. Dvorožňák, D. Sýkora, and Y. Gingold: **Decomposing Time-Lapse Paintings into Layers**. In *ACM Transactions on Graphics* 34(4):61, 2015 (SIGGRAPH, Los Angeles, USA, August 2015).

D. Sýkora, L. Kavan, M. Čadík, O. Jamriška, A. Jacobson, B. Whited, M. Simmons, and O. Sorkine-Hornung: **Ink-and-Ray: Bas-Relief Meshes for Adding Global Illumination Effects to Hand-Drawn Characters**. In *ACM Transactions on Graphics* 33(2):16, 2014 (SIGGRAPH, Vancouver, Canada, August 2014).

J. Fišer, M. Lukáč, O. Jamriška, M. Čadík, Y. Gingold, P. Asente, and D. Sýkora: **Color Me Noisy: Example-Based Rendering of Hand-Colored Animations with Temporal Noise Control**. In *Computer Graphics Forum* 33(4):1–10, 2014 (EGSR'14, Lyon, France, June 2014).

M. Lukáč, J. Fišer, J.-C. Bazin, O. Jamriška, A. Sorkine-Hornung, and D. Sýkora: **Painting by Feature: Texture Boundaries for Example-Based Image Creation**. In *ACM Transactions on Graphics* 32(4):116, 2013 (SIGGRAPH, Anaheim, California, USA, July 2013).

G. Noris, D. Sýkora, A. Shamir, S. Coros, B. Whited, M. Simmons, A. Hornung, M. Gross, and R. Sumner: **Smart Scribbles for Sketch Segmentation**. In *Computer Graphics Forum* 31(8):2516–2527, 2012 (Eurographics, Girona, Spain, May 2013).

D. Sýkora, D. Sedláček, S. Jinchao, J. Dingliana, and S. Collins: **Adding Depth to Cartoons Using Sparse Depth (In)equalities**. In *Computer Graphics Forum* 29(2):615–623, 2010 (Eurographics, Norrköping, Sweden, May 2010), **Günter Enderle Best Paper Award**.

D. Sýkora, J. Dingliana, and S. Collins: **LazyBrush: Flexible Painting Tool for Hand-Drawn Cartoons**. In *Computer Graphics Forum* 28(2):599–608, 2009 (Eurographics, Munich, Germany, March 2009).

J. Obert, J. Křivánek, F. Pellacini, D. Sýkora, and S. Pattanaik: **iCheat: A Representation for Artistic Control of Indirect Cinematic Lighting**. In *Computer Graphics Forum* 27(4):1217–1223, 2008 (EGSR'08, Sarajevo, Bosnia, June 2008).

D. Sýkora, J. Buriánek, and J. Žára: **Colorization of Black-and-White Cartoons**. In *Image and Vision Computing*, 23(9):767–852, 2005.

CONFERENCE
PUBLICATIONS

O. Jamriška, D. Sýkora, A. Hornung: **Cache-Efficient Graph Cuts on Structured Grids**. In *Proceedings of Conference on Computer Vision and Pattern Recognition*, pp. 3673–3680, 2012 (CVPR'12, Providence, Rhode Island, USA, June 2012).

D. Sýkora, M. Ben-Chen, M. Čadík, B. Whited, and M. Simmons: **TexToons: Practical Texture Mapping for Hand-Drawn Cartoon Animations**. In *Proceedings of the 9th International Symposium on Non-Photorealistic Animation and Rendering*, pp. 75–83, 2011 (NPAR'11, Vancouver, Canada, August 2011), **Best Paper Award**.

G. Noris, D. Sýkora, S. Coros, B. Whited, M. Simmons, A. Hornung, M. Gross, and R. Sumner: **Temporal Noise Control for Sketchy Animation**. In *Proceedings of the 9th International Symposium on Non-Photorealistic Animation and Rendering*, pp. 93–98, 2011 (NPAR'11, Vancouver, Canada, August 2011).

D. Sýkora, J. Dingliana, and S. Collins: **As-Rigid-As-Possible Image Registration for Hand-Drawn Cartoon Animations**. In *Proceedings of the 7th International Symposium on Non-Photorealistic Animation and Rendering*, pp. 25–33, 2009 (NPAR’09, New Orleans, Louisiana, USA, August 2009).

D. Sýkora, D. Sedláček, and K. Riege: **Real-Time Color Ball Tracking for Augmented Reality**. In *Proceedings of the 14th Eurographics Symposium on Virtual Environments*, pp. 9–16, 2008 (EGVE’08, Eindhoven, The Netherlands, May 2008).

D. Sýkora, J. Buriánek, and J. Žára: **Video Codec for Classical Cartoon Animations with Hardware Accelerated Playback**. In *Proceedings of the 1st International Symposium on Visual Computing*, pp. 43–50, 2005 (ISVC’05 Lake Tahoe, Nevada, USA, December 2005).

D. Sýkora, J. Buriánek, and J. Žára: **Sketching Car toons by Example**. In *Proceedings of the 2nd Eurographics Workshop on Sketch-Based Interfaces and Modeling*, pp. 27–34, 2005 (SBIM’05, Dublin, Ireland, August 2005).

D. Sýkora, J. Buriánek, and J. Žára: **Unsupervised Colorization of Black-and-White Cartoons**. In *Proceedings of the 3rd International Symposium on Non-Photorealistic Animation and Rendering*, pp. 121–127, 2004 (NPAR’04, Annecy, France, June 2004).

D. Sýkora, J. Buriánek, and J. Žára: **Segmentation of Black-and-White Cartoons**. In *Proceedings of the 19th Spring Conference on Computer Graphics*, pp. 233–230, 2003 (SCCG’03, Budmerice, Slovakia, April 2003).

BOOK CHAPTERS D. Sýkora and J. Dingliana: **Computer-Assisted Repurposing of Existing Animations**. Rosin et al.: *Image and Video based Artistic Stylisation*, *Computational Imaging and Vision*, vol. 42, pp. 285–308, Springer, 2013.

PATENTS G. Noris, D. Sýkora, S. Coros, B. Whited, M. Simmons, A. Hornung, M. Gross, and R. Sumner: **Temporal Noise Control for Sketchy Animation** U.S. Patent No. 9,123,145. September 2015.

G. Noris, D. Sýkora, A. Shamir, S. Coros, B. Whited, M. Simmons, A. Hornung, M. Gross, and R. Sumner: **Smart Scribbles for Sketch Segmentation**. U.S. Patent No. 9,082,005. July 2015.

O. Jamriška and D. Sýkora: **Optimizing Computation of Minimum Cut in Graphs with Grid Topology**. U.S. Patent No. 8,533,139. September 2013.

H-INDEX Web of Science: **6**, Scopus: **10**, Google Scholar: **14**

CREDITS **The Lion King 3D**
Walt Disney Pictures, September 2011.

O loupežníku Rumcajsovi (13 episodes)
Czech TV & Universal Production Partners, March 2003.

INVITED TALKS **Helping Charming Hand-Drawn to Survive in Cruel CG**
33rd Spring Conference on Computer Graphics, Mikulov, Czech Republic, May 2017.

StyLit: Example-Based Stylization of 3D Renderings
22nd Conference on Animation, Effects, Games and Transmedia, Stuttgart, Germany, May 2017.

Helping Charming Hand-Drawn to Survive in Cruel CG
Demobit, Bratislava, Slovakia, January 2017.

Bridging the Gap Between Hand-Drawn and Computer-Generated
Walt Disney Animation Studios, Burbank, USA, July 2016.

Time Lapse Paintings
21st Conference on Animation, Effects, Games and Transmedia, Stuttgart, Germany, April 2016.

Ink-and-Ray: Adding Global Illumination Effects to Hand-Drawn Characters
20th Conference on Animation, Effects, Games and Transmedia, Stuttgart, Germany, May 2015.

Hand-Drawn Animation as Computer Science

Anifilm, International Festival of Animated Films, Třeboň, Czech Republic, May 2015.

TexToons: Practical Texture Mapping for Hand-Drawn Cartoon Animations

17th Conference on Animation, Effects, Games and Transmedia, Stuttgart, Germany, May 2012.

Towards 3D-Like Look of Hand-Drawn Cartoons

29th Pattern Recognition and Computer Vision Colloquium, Prague, Czech Republic, October 2011.

INDIVIDUAL FUNDING

Fluidymation (Fulbright Visiting Scholar Program 2017/18)

Efficient Painting & Enhancement of Hand-Drawn Cartoon Animations (FP7-ERG-268216)

Computer Assisted Renewal of Classical Cartoon Animations (FP7-IEF-221320)

Automatic Colorization of Hand-Drawn Cartoon Animations (FRVŠ 2005-1170)

Inking Black-and-White Cartoons (FRVŠ 2004-2067)

PROFESSIONAL ACTIVITIES

Organizing committee: Eurographics (2007 & 2017)

Program committee: EGSR (2016–2017), Expressive (2013–2017), GI (2017), SCA (2016), NPAR (2010–2012), CAD/Graphics (2015), IPR (2012)

Reviewer: SIGGRAPH (2006–2017), SIGGRAPH Asia (2009–2016), Eurographics (2005–2017), TOG (2012–2016), TVCG (2010–2016), CGF (2009–2016), C&G (2012–2016), Expressive (2013–2016), EGSR (2016), SCA (2016), CHI (2015), CAD/Graphics (2015), PG (2009–2013), JVCi (2013), JEI (2011–2012), NPAR (2010–2012), SCCG (2006–2012), IPR (2012), CG&A (2011), STSP (2011), Web3D (2010), ISVC (2009), EGIRL (2009), VIE (2006), VIIP (2006), WSCG (2007), CESCg (2006).

TEACHING EXPERIENCE

Advanced Interactive Image Manipulation (A4M39AIM)

Master Course, Faculty of Electrical Engineering, CTU in Prague, 2013–present.

Digital Image Processing (MI-DZO)

Master Course, Faculty of Information Technology, CTU in Prague, 2011–present.

Graphics Hardware & Realtime Rendering (CS7031)

Master Course, School of Computer Science and Statistics, Trinity College Dublin, 2009–2010.

Group Programming Project (2BA7)

Bachelor Course, School of Computer Science and Statistics, Trinity College Dublin, 2009.

Multimedia & Computer Animation (X36MMA)

Master Course, Faculty of Electrical Engineering, CTU in Prague, 2005–2007.

STUDENT SUPERVISION

CTU in Prague (9 BS, 19 MS, 3 PhD):

P. Bílek (BS), J. Břejcha (MS), P. Diviš (MS), M. Dvorožňák (MS, PhD), M. Dzurenko (MS), J. Fišer (MS, PhD), D. Futschik (MS), O. Jamriška (MS), P. Jaškovský (MS), P. Kalinová (MS), J. Keller (MS), P. Krajník (MS), J. Krupička (MS), T. Krupka (MS), J. Kula (BS), L. Kunc (MS), M. Lukáč (PhD), J. Meloun (MS), M. Mudra (BS), Z. Růta (BS), L. Saidlová (BS, MS), Š. Sochorová (MS), M. Stezka (BS), F. Šůna (BS), M. Svoboda (MS), O. Texler (MS), P. Ulrichová (BS), R. Vávra (BS).

Trinity College Dublin (3 MS):

S. Jinchao (MS), J. Warren (MS), S. O'Brien (MS).

TECHNOLOGY TRANSFERS

Algorithm **GridCut** [Jamriška et al. 2012] was licensed to *Siemens* (2016), *Huawei* (2016), *Samsung* (2015), *Autodesk* (2014), *Disney* (2013), *Nokia* (2013), and nine other companies.

Algorithms **LazyBrush** [Sýkora et al. 2009] and **TexToons** [Sýkora et al. 2011] were licensed to *TVPaint Development* (2013) and integrated into TVPaint Animation 11 Professional Edition software (2015). They are used in traditionally animated movies, e.g., **The Red Turtle** (2016).

Algorithms for **image registration** [Sýkora et al. 2009] and **adding depth** [Sýkora et al. 2010] were reimplemented at *Disney* (2010) and used for stereo conversion of **The Lion King 3D** movie (2011).

Algorithm for **colorization** [Sýkora et al. 2005] was licensed to *Universal Production Partners* (2002) and used for colorization of 13 episodes of **O loupežníku Rumcajsovi** serial (2003).