

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>Full Professor</i> <i>Associate Professor</i> <i>Assistant Professor</i> <i>Research Fellow</i>	December 2018 – present December 2014 – November 2018 October 2010 – November 2014 January 2006 – February 2008
	University of Utah <i>Visiting Fulbright Scholar</i>	August 2017 – February 2018
	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	Snap, Inc.	March 2018 – December 2019
	Universal Production Partners, a.s.	September 2012 – December 2019
	Disney Research Zurich	October 2011 – October 2015
	Walt Disney Animation Studios	October 2010 – November 2015
AWARDS	Best in Show Award at Real-Time Live! , SIGGRAPH, August 2020. Outstanding Applied Research Award , CTU in Prague, January 2020. 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 Award , CTU in Prague, September 2007. ACM Student Award , Czech ACM & Microsoft, November 2003.	
SIGGRAPH PAPERS	M. Dvorožňák, D. Sýkora, C. Curtis, B. Curless, O. Sorkine-Hornung, and D. Salesin: Monster Mash: A Single-View Approach to Casual 3D Modeling and Animation . In <i>ACM Transactions on Graphics</i> 39(6):214, 2020 (SIGGRAPH Asia, December 2020). O. Texler, D. Futschik, M. Kučera, O. Jamriška, Š. Sochorová, M. Chai, S. Tulyakov, and D. Sýkora: Interactive Video Stylization Using Few-Shot Patch-Based Training . In <i>ACM Transactions on Graphics</i> 39(4):73, 2020 (SIGGRAPH, August 2020). O. Jamriška, Š. Sochorová, O. Texler, M. Lukáč, J. Fišer, J. Lu, E. Shechtman, and D. Sýkora: Stylizing Video by Example . In <i>ACM Transactions on Graphics</i> 38(4):107, 2019 (SIGGRAPH, Los Angeles, USA, July 2019).	

M. Dvorožňák, W. Li, V. Kim, and D. Sýkora: **ToonSynth: Example-Based Synthesis of Hand-Colored Cartoon Animations.** In *ACM Transactions on Graphics* 37(4):167, 2018 (SIGGRAPH, Vancouver, Canada, August 2018).

J. Fišer, O. Jamriška, D. Simons, E. Shechtman, J. Lu, P. Asente, M. Lukáč, and D. Sýkora: **Example-Based Synthesis of Stylized Facial Animations.** In *ACM Transactions on Graphics* 36(4):155, 2017 (SIGGRAPH, Los Angeles, USA, July 2017).

M. Dvorožňák, P. Bénard, P. Barla, O. Wang, and D. Sýkora: **Example-Based Expressive Animation of 2D Rigid Bodies.** In *ACM Transactions on Graphics* 36(4):127, 2017 (SIGGRAPH, Los Angeles, USA, July 2017).

M. Lukáč, D. Sýkora, K. Sunkavalli, E. Shechtman, O. Jamriška, N. Carr, and T. Pajdla: **Nautilus: Recovering Regional Symmetry Transformations for Image Editing.** In *ACM Transactions on Graphics* 36(4):108, 2017 (SIGGRAPH, Los Angeles, USA, July 2017).

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 *ACM Transactions on Graphics* 35(4):92, 2016 (SIGGRAPH, Anaheim, USA, July 2016).

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).

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).

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).

JOURNAL PAPERS D. Futschik, M. Kučera, M. Lukáč, Z. Wang, E. Shechtman, and D. Sýkora: **STALP: Style Transfer with Auxiliary Limited Pairing.** In *Computer Graphics Forum* 40(2):563–573, 2021 (Eurographics, Vienna, Austria, May 2021).

A. Texler, O. Texler, M. Kučera, M. Chai, and D. Sýkora: **FaceBlit: Instant Real-time Example-based Style Transfer to Facial Videos.** In *Proceedings of the ACM on Computer Graphics and Interactive Techniques* 4(1):14, 2021 (I3D'21, April 2021).

F. Hauptfleisch, O. Texler, A. Texler, J. Krivánek, and D. Sýkora: **StyleProp: Real-time Example-based Stylization of 3D Models.** In *Computer Graphics Forum* 39(7):575–586, 2020 (PG'20+21, Wellington, New Zealand, November 2021).

O. Texler, J. Fišer, M. Lukáč, J. Lu, E. Shechtman, and D. Sýkora: **Arbitrary Style Transfer Using Neurally-Guided Patch-Based Synthesis.** In *Computers & Graphics*, 87:62–71, 2020 (Expressive 2019, Genova, Italy, May 2019).

W. Yang, N. Marshak, D. Sýkora, S. Ramalingam, and L. Kavan: **Building Anatomically Realistic Jaw Kinematics Model from Data.** In *The Visual Computer* 35(6–8), 2019 (CGI'19, Calgary, Canada, June 2019).

D. Sýkora, O. Jamriška, O. Texler, J. Fišer, M. Lukáč, J. Lu, and E. Shechtman: **StyleBlit: Fast Example-Based Stylization with Local Guidance.** In *Computer Graphics Forum* 38(2):83–91, 2019 (Eurographics, Genova, Italy, May 2019).

W. Yang, H.-S. Seah, Q. Chen, H.-Z. Liew, and D. Sýkora: **FTP-SC: Fuzzy Topology Preserving Stroke Correspondence.** In *Computer Graphics Forum* 37(8):125–135, 2018 (SCA'18, Paris, France, July 2018).

M. Čadík, D. Sýkora, and S. Lee: **Automated Outdoor Depth-Map Generation and Alignment.** In *Computers & Graphics* 74:109–118, 2018.

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

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).

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).

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. Krivánek, 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
PAPERS

D. Futschik, M. Chai, C. Cao, C. Ma, A. Stoliar, S. Korolev, S. Tulyakov, M. Kučera, and D. Sýkora: **Real-Time Patch-Based Stylization of Portraits Using Generative Adversarial Network.** In *Proceedings of the 8th ACM/EG Expressive Symposium*, pp. 33–42, 2019 (Expressive 2019, Genova, Italy, May 2019).

O. Texler, J. Fišer, M. Lukáč, J. Lu, E. Shechtman, and D. Sýkora: **Enhancing Neural Style Transfer using Patch-Based Synthesis.** In *Proceedings of the 8th ACM/EG Expressive Symposium*, pp. 43–50, 2019 (Expressive 2019, Genova, Italy, May 2019).

M. Dvorožňák, S. Nejad, O. Jamriška, A. Jacobson, L. Kavan, and D. Sýkora: **Seamless Reconstruction of Part-Based High-Relief Models from Hand-Drawn Images.** In *Proceedings of the Joint Symposium on Computational Aesthetics and Sketch-Based Interfaces and Modeling and Non-Photorealistic Animation and Rendering*, art. no. 5, 2018 (Expressive 2018, Victoria, Canada, August 2018).

J. Fišer, P. Asente, and D. Sýkora: **ShipShape: A Drawing Beautification Assistant.** In *Proceedings of the workshop on Sketch-Based Interfaces and Modeling*, pp. 49–57, 2015 (SBIM'15, Istanbul, Turkey, June 2015).

O. Jamriška, D. Sýkora, and 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 Cartoons 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 M. Dvorožňák, W. Li, V. Kim, and D. Sýkora: **Generating Target-character-animation Sequences Based on Style-aware Puppets Patterned After Source-character-animation Sequences** U.S. Patent No. 10,789,754, September 2020.

J. Fišer, O. Jamriška, D. Simons, E. Shechtman, J. Lu, P. Asente, M. Lukáč, and D. Sýkora: **Generating a Stylized Image or Stylized Animation by Matching Semantic Features via an Appearance Guide, a Segmentation Guide, and/or a Temporal Guide**, U.S. Patent No. 10,504,267, December 2019.

J. Fišer, O. Jamriška, M. Lukáč, E. Shechtman, P. Asente, J. Lu, and D. Sýkora **Controlling Patch Usage in Image Synthesis**, U.S. Patent No. 9,905,054, February 2018.

J. Fišer, O. Jamriška, M. Lukáč, E. Shechtman, P. Asente, J. Lu, and D. Sýkora **Illumination-guided Example-based Stylization of 3D Renderings**, U.S. Patent No. 9,881,413, January 2018.

O. Jamriška, J. Fišer, P. Asente, J. Lu, E. Shechtman, and D. Sýkora: **Appearance Transfer Techniques**, U.S. Patent No. 9,870,638, January 2018.

O. Jamriška, J. Fišer, P. Asente, J. Lu, E. Shechtman, and D. Sýkora: **Appearance Transfer Techniques Maintaining Temporal Coherence**, U.S. Patent No. 9,852,523. December 2017.

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 20 (Google Scholar)

CREDITS **La mouche de bronze**
Karleener, October 2019.

The Lion King 3D

Walt Disney Pictures, September 2011.

O loupežníku Rumcajsovi (13 episodes)

Czech TV & Universal Production Partners, March 2003.

INVITED TALKS

Can AI Paint Like an Artist?

CESCG, Smolenice, Slovak Republic, May 2020.

Artistic Style Transfer Demystified

EuroVis, Brno, Czech Republic, June 2018.

Let the machine become the next Rembrandt!

42nd Pattern Recognition and Computer Vision Colloquium, Prague, Czech Republic, April 2018.

Back to the Roots: Bridging the Gap Between Hand-Drawn and Computer-Generated

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.

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

Associate Editor: Computer Graphics Forum (2019–present)

Organizing Committee: Eurographics (2007 & 2017), Expressive (2018)

Program Committee: SIGGRAPH (2019), EGSR (2016, 2017 & 2021), Expressive (2013–2019), GI (2017), SCA (2016), NPAR (2010–2012), CAD/Graphics (2015), IPR (2012)

Reviewer: SIGGRAPH (2006–2021), SIGGRAPH Asia (2009–2020), Eurographics (2005–2017), TOG (2012–2020), TVCG (2010–2020), CGF (2009–2020), C&G (2012–2018), Expressive (2013–2017), EGSR (2016–2017), GI (2017), 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.

Computer Graphics (CS 4600)

Bachelor Course, School of Computing, University of Utah, 2017.

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 (10 BS, 26 MS, 7 PhD):

P. Bílek (BS), J. Brejcha (MS), J. Burýšek (MS), P. Diviš (MS), M. Dvorožník (MS, PhD), M. Dzurenko (MS), J. Fišer (MS, PhD), D. Futschik (MS, PhD), F. Hauptfleisch (MS), O. Jamříška (MS), P. Jaškovský (MS), P. Kalinová (MS), J. Keller (MS), P. Krajník (MS), J. Krupička (MS), T. Krupka (MS), M. Kučera (MS, PhD), J. Kula (BS), L. Kunc (MS), B. Laskov (MS), M. Lukáč (PhD), M. Nechanský (MS), J. Meloun (MS), M. Mudra (BS), A. Platkevič (MS), Z. Růta (BS), L. Saidlová (BS, MS), S. Schimper (MS), Š. Sochorová (MS, PhD), M. Stezka (BS), P. Šádek (BS), F. Šůna (BS), M. Svoboda (MS), O. Texler (MS, PhD), P. Ulrichová (BS), R. Vávra (BS).

Trinity College Dublin (3 MS):

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

TECHNOLOGY TRANSFERS

Algorithm for **example-based stylization of videos** [Jamříška et al. 2019] was implemented by *Secret Weapons* and released as **EbSynth** (2019). The tool is being used for production of stylized movies, e.g., **La mouche de bronze** (2019) or **iMucha** (2020).

Algorithm **FaceStyle** [Fišer et al. 2017] was integrated into **Adobe Character Animator** (2018).

Algorithm **GridCut** [Jamříška et al. 2012] was licensed to *Adobe* (2019), *Siemens* (2016), *Samsung* (2015), *Autodesk* (2014), *Disney* (2013), *Nokia* (2013), and 19 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).