prof. Ing. Martin Čadík, Ph.D. – Curriculum Vitæ (November, 2025)

Contact Information

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Education

2002–2008: *Ph.D. studies* at the Department of Computer Science and Engineering, Faculty of Electrical Engineering, Czech Technical University in Prague; outstanding dissertation award

1996–2002: *Ms.C. studies (Ing.)* at the Department of Computer Science and Engineering, Faculty of Electrical Engineering, Czech Technical University in Prague; graduated in computer graphics with distinction

1992–1996: *Secondary school* of electrical engineering, Karla IV. 13, Pardubice; specialization in computer engineering; graduated with distinction

Research Visits

2019: Bar Ilan University, Israel (Y. Keller); Visual geo-localization

2019: Purdue University, West Lafayette, USA (B. Benes); Computational photography and visual perception

2016: INRIA - Willow Project, Paris, France (J. Sivic); Visual geo-localization

2012: Czech Technical University, Prague, Czech Republic (D. Sýkora); Visual perception for cartoon animations

2012: Bangor University, Wales, United Kingdom (R. Mantiuk); Objective image quality assessment

2008: Universitat de Girona, Girona, Spain (L. Neumann, R. Garcia); Real-time HDR tone mapping

2007: Computer Vision and Robotics Group, University of Girona, Girona, Spain (L. Neumann, R. Garcia); HDR tone mapping, color to grayscale conversion

2005–2006: Department of Informatics, Hochschule für Technik und Wirtschaft, Dresden, Germany; (W. Paetzold, L. Neumann); research and development of new tone mapping methods

2005: Institute of Computer Graphics and Algorithms, Vienna University of Technology, Austria (S. Jeschke, M. Wimmer, A. Neumann); high dynamic range imaging

2004: Institute of Computer Graphics and Algorithms, Vienna University of Technology, Austria (A. Artusi, M. Wimmer); implementation and comparison of tone mapping algorithms

Research Activities

Reviewer for journals and conferences: NeurIPS, ACM TOG, ACM SIGGRAPH, IEEE TVCG, EUROGRAPHICS, IEEE PAMI, IEEE TIP, ACM TAP, IEEE CVPR, IEEE ICCV, ECCV, Wiley CGF, Springer IJCV, Elsevier JVCIR, Pacific Graphics, Optica Applicata, IET Image Processing

Computer Graphics Forum 2019 – 2023 *associate editor (AE)*

HiVisComp 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2023, 2024, 2025, 2026 Czech Republic, Slovakia *founder, program and organization committee member*

Pacific Graphics 2019, 2022 *program committee member*

VS-Games 2019 *program committee member*

EXPRESSIVE 2018, EXPRESSIVE 2019 *program committee member*

BMVC 2015 *program committee member*

EUROGRAPHICS 2014, EUROGRAPHICS 2015 *short-paper program committee member*

HDR imaging 2013, HDRi 2014 *program committee member*

EGSR 2010, Saarbrücken, Germany, *poster session chair*

EUROGRAPHICS 2007, Prague, Czech Republic, *organizing committee member*

EUROGRAPHICS Minisymposium 2007, Prague, Czech Republic, *organizer, chairman*

SIGGRAPH 2006 *Student Volunteer*, Boston, MA, USA

Awards and Honors

2024: Outstanding Conference Paper Award, Award of Rector of BUT, Czech Republic

2019: Commemorative Bronze Medal of FIT BUT, Award of Dean of FIT BUT, Czech Republic

2011: Best Paper Award, International Symposium on Non-Photorealistic Animation and Rendering (NPAR), Vancouver, Canada

2008: Trans it! - the best applicable inventions at CTU, Prague, Czech Republic

2008: Outstanding dissertation, CTU in Prague, Czech Republic

Recipient of the following *research grants*: 2019: DEEP_LOCATE - Deep-Learning Approach to Topographical Image Analysis, MŠMT CZ, 2019-2022; 2018: BOREC - Colour Image in Realtime Embedded Computing (TH03010330, Technology Agency of the Czech Republic); 2016: Visual Geo-localization and Pose Estimation in Mountainous Terrains (project OPEN-7-49, National Supercomputing Center IT4Innovations, Czech Republic); 2014: Incoming Grant on Visual Localization in Natural Environments (SoMoPro II co-financed by Marie Curie Actions, REA 291782); 2012: COST STSM (ECOST-STSM-IC1005-100312-015783), Image distortion maps for evaluation of quality metrics, Bangor, UK; 2006–2010: Grant No. LC06008, Center for Computer Graphics; 2007–2008: Aktion Kontakt OE/CZ grant No. 48p11, Realistic Real-Time Rendering of Trees and Vegetation; 2005–2006: Erasmus scholarship of the European Union, HTW Dresden, Germany; 2007: Grant No. CTU0715413, Organization of the EG 2007; 2004: Grant No. CTU0408813, Automatic Comparison of Images

Teaching Experience

2013–now: Courses at the Department of Computer Graphics and Multimedia, BUT Brno, Czech Republic: Computer Vision, Advanced Computer Graphics, Computer Art, Computational Photography, Introduction to Game Development

2014: HDR Image and Video Quality Assessment, COST Training School, BUT Brno, Czech Republic

2012: Introduction to HDR and HDR Quality Assessment, COST Training School, Irisa/Inria Rennes, France

2009–2013: Realistic Image Synthesis, University of Saarland, Saarbrücken, Germany

2005–2008: Supervisor of master's theses and semestral projects on computer graphics, CTU in Prague, Czech Republic

2004–2006: Lectures at FAMU, Academy of Performing Arts in Prague, and Academy of Arts, Architecture and Design in Prague, Czech Republic: Visual Perception

2002–2004: Municipal Library of Prague, Czech Republic; position: lecturer (ECDL and computer graphics courses)

2002–2008: Courses at the Department of Computer Science and Engineering, CTU in Prague, Czech Republic: Multimedia II, Design and Implementation of User Interfaces, Computer Graphics Algorithms, High Dynamic Range Imaging, Computer Graphics Applications, Operating System UNIX

Working Experience

2018–2022: Research Center for Informatics, Czech Technical University in Prague; position: researcher

2018–2024: WorkTeam, Forena.cz; position: researcher

2025–now: Department of Computer Graphics and Multimedia, BUT Brno, Czech Republic; position: professor, researcher

2015–2025: Department of Computer Graphics and Multimedia, BUT Brno, Czech Republic; position: associate professor, researcher

2013–2015: Department of Computer Graphics and Multimedia, BUT Brno, Czech Republic; position: assistant professor, researcher

2009–2013: Max-Planck-Institut für Informatik, Saarbrücken; position: post-doc, researcher

2007–2009: Computer Graphics Group, Faculty of Electrical Engineering, Czech Technical University in Prague; position: researcher

2002–2008: Web programming and webdesign; position: developer (html, css, php, java, javascript)

2001: HiSoftware; position: developer (Java web applets development)

1999–2001: Hewlett-Packard education centre, NextSoft; position: developer (MFC, C, C++, stand alone and web applications), UNIX and MS-Windows system administrator

Selected Publications

Dekel, S., Keller, Y., Čadík, M. Estimating Extreme 3D Image Rotations using Cascaded Attention. In Proceedings of IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2024), pp. 2588-2598, Seattle, USA, 2024.

Bobák, P., Čmolík, L., Čadík, M. Reinforced Labels: Multi-Agent Deep Reinforcement Learning for Point-Feature Label Placement. IEEE Transactions on Visualization and Computer Graphics (TVCG), DOI 10.1109/TVCG.2023.3313729, ISSN 1077-2626, 2023. Presented at PacificVis 2024, Tokyo, Japan.

Polášek, T., Čadík, M. Predicting Photovoltaic Power Production using High-Uncertainty Weather Forecasts. Applied Energy, Elsevier, ISSN 0306-2619, 2023.

Polášek, T., Čadík, M., Keller, Y., Benes, B.: Vision UFormer: Long-Range Monocular Absolute Depth Estimation. Computers & Graphics, Elsevier, ISSN 0097-8493, 2023.

Rajasekaran, S. D., Kang, H., Čadík, M., Galin, E., Guérin, E., Peytavie, A., Slavík, P., Benes, B.: PTRM: Perceived Terrain Realism Metric. ACM Transactions on Applied Perception, ISSN: 1544-3558, New York, NY, United States, 2022.

Tomešek, J., Čadík, M., Brejcha, J.: CrossLocate: Cross-modal Large-scale Visual Geo-Localization in Natural Environments using Rendered Modalities. WACV 2022 (IEEE Winter Conf. on Applications of Computer Vision), Waikoloa, Hawaii, 2022.

Polášek, T., Hrůša, D., Beneš, B., Čadík, M.: ICTree: Automatic Perceptual Metrics for Tree Models. ACM Transactions on Graphics (SIGGRAPH Asia 2021), vol. 40, no. 6, ISSN 0730-0301, ACM, 2021.

Ahmad, T., Emami, E., Čadík, M., Bebis, G.: Resource Efficient Mountainous Skyline Extraction using Shallow Learning. Proceedings of the International Joint Conference on Neural Networks (IJCNN), IEEE Computational Intelligence Society, 2021.

Bobák, P., Čmolík, L., Čadík, M.: Temporally Stable Boundary Labeling for Interactive and Non-Interactive Dynamic Scenes. Computers & Graphics, Elsevier, ISSN 0097-8493, 2020.

Brejcha, J., Lukáč, M., Hold-Geoffroy, Y., Wang, O., Čadík, M.: LandscapeAR: Large Scale Outdoor Augmented Reality by Matching Photographs with Terrain Models Using Learned Descriptors. 16th European Conference on Computer Vision (ECCV), online, 2020.

Bobák, P., Čmolík, L., Čadík, M.: Video Sequence Boundary Labeling with Temporal Coherence. Computer Graphics International'19, Calgary, Canada, 2019.

Brejcha, J., Čadík, M.: Camera Orientation Estimation in Natural Scenes Using Semantic Cues. International Conference on 3D Vision (3DV), Verona, Italy, 2018.

Brejcha, J., Lukáč, M., Chen, Z., DiVerdi, S., Čadík, M.: Immersive Trip Reports. The 31th Annual ACM Symposium on User Interface Software and Technology (UIST'18), ACM, Berlin, Germany, 2018.

Čadík, M.,, Sýkora, D., Lee, S.: Automated outdoor depth-map generation and alignment. Computers and Graphics. Elmsford, NY: Elsevier Science, 2018, vol. 74, no. 3, pp. 109-118. ISSN 0097-8493.

Brejcha, J., Čadík, M.: Camera Orientation Estimation in Natural Scenes Using Semantic Cues. In: 2018 International Conference on 3D Vision. Verona: IEEE Computer Society, 2018, pp. 208-217. ISBN 978-1-5386-2610-8.

Brejcha, J., Lukáč, M., Chen, Z., Diverdi, S., Čadík, M.: Immersive Trip Reports. In: Proceedings of the 31st ACM User Interface Software and Technology Symposium. Berlin: Association for Computing Machinery, 2018, pp. 1-14. ISBN 978-1-4503-5948-1.

Ahmad, T., Campr, P., Čadík, M., Bebis, G.: Comparison of Semantic Segmentation Approaches for Horizon/Sky Line Detection. In: Proceedings of the International Joint Conference on Neural Networks (IJCNN). Anchorage: Institute of Electrical and Electronics Engineers, 2017, pp. 1-8.

ISBN 978-1-4799-1961-1.

Brejcha, J., Čadík, M.: GeoPose3K: Mountain Landscape Dataset for Camera Pose Estimation in Outdoor Environments. Image and Vision Computing. Washington: Elsevier Science, 2017, vol. 2017, no. 1, pp. 1-41. ISSN 0262-8856.

Brejcha, J., Čadík, M.: State-of-the-art in Visual Geo-localization. Pattern Analysis and Applications. 2017, vol. 2017, no. 3, pp. 1-25. ISSN 1433-7541.

Přibyl, B., Zemčík, P., and Čadík, M.: Absolute Pose Estimation from Line Correspondences using Direct Linear Transformation. Computer Vision and Image Understanding. 2017, vol. 161, no. 1, pp. 130-144. ISSN 1077-3142.

Přibyl, B., Chalmers, A., Zemčík, P., , Hooberman, L., Čadík, M.: Evaluation of Feature Point Detection in High Dynamic Range Imagery. Journal of Visual Communication and Image Representation. Amsterdam: Elsevier Science, 2016, vol. 38, no. 1, pp. 141-160. ISSN 1047-3203.

Čadík, M., Aydin, T., O.: HDR Video Metrics. High Dynamic Range Video: Concepts, Technologies and Applications. London: Elsevier Science, 2016, pp. 111-125. ISBN 978-0-12-809477-8.

Čadík, M., Vašíček, J., Hradiš, M., Radenović, F., Chum, O.: Camera Elevation Estimation from a Single Mountain Landscape Photograph, BMVC, 2015 (Swansea, UK).

Přibyl, B., Zemčík, P., Čadík, M.: Camera Pose Estimation from Lines using Plücker Coordinates. In: Proceedings of the British Machine Vision Conference (BMVC 2015). Swansea: The British Machine Vision Association and Society for Pattern Recognition, 2015, pp. 1-12. ISBN 978-1-901725-53-7.

Fišer, J., Lukáč, M., Jamriška, O., Čadík, M., Gingold, Y., Asente, P., Sýkora, D.: Color Me Noisy: Example-based Rendering of Hand-colored Animations with Temporal Noise Control, Computer Graphics Forum, Vol. 33, Num. 4 (proc. of EGSR'14), 2014 (Lyon, France).

Sýkora, D., Kavan, L., Čadík, M., Jamriška, O., Jacobson, A., Whited, B., Simmons, M., Sorkine-Hornung, O.: Ink-and-Ray: Bas-Relief Meshes for Adding Global Illumination Effects to Hand-Drawn Characters, ACM Transactions on Graphics, vol. 33, no. 2, ACM, 2014 (SIGGRAPH 2014, Vancouver, Canada).

Čadík, M., Herzog, R., Mantiuk, R., Mantiuk, R., Myszkowski, K., Seidel, H.P.: Learning to Predict Localized Distortions in Rendered Images, Computer Graphics Forum Vol. 32, Num. 7 (proc. of Pacific Graphics'13), pp. 401-410, 2013.

Čadík, M., Herzog, R., Mantiuk, R., Myszkowski, K., Seidel, H.P.: New Measurements Reveal Weaknesses of Image Quality Metrics in Evaluating Graphics Artifacts, ACM Transactions on Graphics (SIGGRAPH Asia 2012), Singapore, 2012.

Herzog, R., Čadík, M., Aydin, T. O., Kwang I. K., Myszkowski, K., Seidel, H.P.: NoRM: No-Reference Image Quality Metric for Realistic Image Synthesis, Computer Graphics Forum, vol. 31, (Proceedings of Eurographics'12), Cagliari, Italy, 2012.

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

Baboud, L., Čadík, M., Eisemann, E., Seidel, H.P.: Automatic Photo-to-Terrain Alignment for the Annotation of Mountain Pictures, In Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2011) (oral), 2011.

Aydin, T.O., Čadík, M., Myszkowski, K., Seidel, H.P.: Video Quality Assessment for Computer Graphics Applications, ACM Transactions on Graphics (SIGGRAPH Asia 2010), vol. 29, no. 5, ACM, 2010.

Aydin, T.O., Čadík, M., Myszkowski, K., Seidel, H.P.: Visually Significant Edges, ACM Transactions on Applied Perception, Vol. 7, No. 4, Article 27, (Symposium on Applied Perception in Graphics and Visualization (APGV)), 2010.

Čadík, M.: Perceptual Evaluation of Color-to-Grayscale Image Conversions, Computer Graphics Forum (Proceedings of Pacific Graphics'08), Vol. 27, Number 7, 2008.

Čadík, M., Wimmer, M., Neumann, L., Artusi, A.: Evaluation of HDR Tone Mapping Methods Using Essential Perceptual Attributes, Computers & Grahics, Elsevier, p. 330-352, 2008.

Complete listing of publications at: `http://cadik.posvete.cz/`

Patents

Lukáč M., Wang O., Brejcha J., Hold-Geoffroy Y., Čadík M.: Large-scale outdoor augmented reality scenes using camera pose based on learned descriptors, U.S. Patent No. 2022/0114365 A1.

Lukáč M., Chen Z., Brejcha J., Čadík, M.: Generating immersive trip photograph visualizations, U.S. Patent No. 10,825,246 and 11,113,882.

Hobbies and Other Skills

computer graphics, computational aesthetics, photography, astrophotography
sports (canoeing, mountaineering, skiing, swimming), organization and guiding of expeditions
deserved donor of blood

Language Knowledge

English: fluent, French: basics, Russian: basics, German: basics, Spanish: basics, Czech: mother tongue