Ing. David Sedláček, Ph.D.

Curriculum Vitae

Contact Information

Address Jabloňová 2882/102, 10600 Prague 10, Czech Republic

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Education

2006–2013 Czech Technical University in Prague,
Faculty of Electrical Engineering
Department of Computer Graphics and Interaction
Degree: Ph.D., Information Science and Computer Engineering, December 2013
Disertation thesis: Semantically driven 3D reconstruction

1999–2006 Czech Technical University in Prague,
Faculty of Electrical Engineering
Degree: Ing. (M.Sc.), Computer Science and Engineering, June 2006
Master thesis: Texture optimization (automatic texture atlas composition)

1994–1999 High School, SPŠST Panská 1
Course: TV, Video, Cinema and Audio - technical specialization

Professional Carrier

2006–now Czech Technical University in Prague (CTU),
Faculty of Electrical Engineering (FEE),
Department of Computer Graphics and Interaction (DCGI)

from 2014 - Assistant professor, leader of VR laboratory at CTU, FEL
from 2010 - Researcher
from 2006 - Teacher, PhD student

research projects:

- 2021-2023 Virtual digital wardrobe (TAČR TL05000298) - **dcgi team leader**
- 2020-2023 Arts and design as solution of traffic changes connected to ascent of autonomous driving (TAČR TL03000549)
- 2020-2022 3D digital objects presentation and preservation in museum collections (MKČR, NAKI II DG20P02OVV027)
- 2020-2022 Langweil's model of Prague as a school historical source (MŠMT, OP VVV CZ.02.3.68/0.0/0.0/18_067/0012327)
- 2018-2020 EduARd - Authoring of educational applications with augmented reality concepts - ICT for Prague, subproject no. 7
(OP PPR24 - CZ.07.1.02/0.0/0.0/16_040/0000367) - **leader**
- 2018-2020 Toyota Lab - TRL TRACE - cooperation of CTU with Toyota Europe - autonomous car research
- 2017-2019 Key technology of time of flight range imaging and application - MŠMT, Inter-Excellence (LTACH17013) - **dcgi team leader**
- 2012-2016 V3C - Visual Computing Competence Center (TAČR TE01020415)
- 2011-2013 ARGIE - Global Illumination for Augmented Reality in General Environments (GAČR P202/11/1883)
- 2010-2012 ViCiTiS - Virtual Cities in Time and Space (SGS SGS10/291/OHK3/3T/13)

teaching:

in czech: Virtual and Augmented reality, Games, Java programming, web development (HTML, CSS, PHP, XML), graphics applications (GIMP, Inkscape, Blender, Maya)

in czech and english: Virtual Reality and Modeling (VRML)

education grants: Internationalization and updating of the 3D Modeling and Virtual Reality course (RPAPS 2018), Expansion of Virtual and Augmented Reality Lab (FRVŠ 843/2013), Application of research results in the field of reconstruction and generation of virtual cities in virtual reality teaching (FRVŠ 1246/2012).

thesis supervision: Supervision of more than 90 defended master and bachelor thesis.

2017–now SCIENCE IN, s.r.o.
Consultant - virtual and augmented reality, mobile development, and web technologies; senior programmer and team leader
projects: ESERO (ESA resource office for education), Stezkami vědy, CONSPIRO.

2013–2015 High Technical School of Civil Engineering and Business Academy in Kladno, Cyril Bouda 2954
Main programmer, programming team leader
Development of 24 interactive, educational apps for Android OS - Biology, Chemistry and Physics for high schools and elementary schools.

2012–2017 Scientica Agency, s.r.o.
Consultant - web technologies and augmented reality, Senior programmer and team leader
projects: ESERO, AGID (Academy of geospatial skills), USEG (Learning/Teaching Geoinformatics), Isle of knowledge, Geo-location educative game Karel IV, Mobile applications for geotaging of a real world, Mobile applications for interactive education, Geo-location educative game Kralupy

2009–2010 KIT digital a.s.,
Senior programmer, 3D reconstruction specialist, consultant
Projects:

2009–2010 Langweil model reconstruction

2010 Study of 3D technologies for AOPK ČR

2006–2009 Visual Connection a.s. (later acquired by KIT digital),
Programmer
Projects:

2007–2009 Langweil model reconstruction (`http://langweil.cz`)

2006 i-legalne (`http://www.i-legalne.cz`)

2003–2007 STS comp s.r.o.
system administrator and web developer

Awards

Günter Enderle Best Paper Award - Eurographics, May 2010.

Other Activities

Organizing committee - Eurographics 2007

Publications

[1] D. Sedláček, O. Okluský, and J. Žára. Moon base: A serious game for education. In *2019 11th International Conference on Virtual Worlds and Games for Serious Applications (VS-Games)*, pages 1–4, 2019.

[2] R. Janovský, D. Sedláček, and J Žára. On improving 3d u-net architecture. In Maciaszek L. van Sinderen M., Maciaszek L., editor, *ICSOFT 2019 - Proceedings of the 14th International Conference on Software Technologies*, pages 649–656. SciTePress, 2019.

[3] Pavel Slavik, David Sedlacek, Ivo Maly, Zdenek Mikovec, and Jan Balata. Virtual Reality in Care for Older Adults. In Georgi, H and Slamberova, R, editor, *AGEING 2018*, pages 151–162, 2018. 4th Gerontological Interdisciplinary Conference, Charles Univ, Third Fac Med, Prague, Czech republic, OCT 19-20, 2018.

[4] R. Janovský and D. Sedláček. Operator station for visualization and control of autonomous unmanned vehicles. In *Proceedings of the 21th Bilateral Student Workshop CTU Prague*, pages 30–31. HTW Dresden, 2018.

[5] I. Malý, D. Sedláček, and P. Leitao. Augmented reality experiments with industrial robot in industry 4.0 environment. In *IEEE INDIN16 - International Conference on Industrial Informatics*, pages 176–181, Poitiers, Fr, 2016.

[6] P. Mareš, L. Holman, and D. Sedláček. Tablets in science education: Experience from implementation in the czech republic. In *New Perspectives in Science Education*, Padova, IT, 2015.

[7] D. Sedláček. 3d rekonstrukce z fotografií. *Vesmír*, 2015(11):634–637, listopad 2015.

[8] D. Sedláček. *Semantically driven 3D reconstruction.* PhD thesis, Czech Technical University, Prague, 2013.

[9] D. Sedláček, J. Buriánek, and J. Žára. 3D Reconstruction Data Set - The Langweil Model of Prague. *International Journal of Heritage in the Digital Era*, 2(2):195–220, June 2013.

[10] D. Sedláček and J. Žára. User Driven 3D Reconstruction Environment. In *Advances in Visual Computing, 8th International Symposium, ISVC 2012, Rethymnon, Crete, Greece, July 16-18, 2012, Revised Selected Papers, Part I*, pages 104–114, Berlin, 2012. Springer-Verlag.

[11] D. Sedláček, Z. Trávníček, and J. Žára. Multi-user Immersive 3D Reconstruction Environment. In *EG 2012 – Posters*, pages 27–28, Aire-la-Ville, 2012. Eurographics Association.

[12] D. Sedláček, J. Buriánek, and J. Žára. 3D Reconstruction Data Set - The Langweil model of Prague (Technical Report). Technical Report CS-TR-DCGI-2012-3, Department of Computer Graphics and Interaction, Czech Technical University in Prague, CTU in Prague, 2012.

[13] D. Sedláček, J. Danihelka, Z. Trávníček, M. Lukáč, R. Berka, and J. Žára. Virtual Cities in Time And Space (ViCiTiS). Technical Report CS-TR-DCGI-2012-4, Department of Computer Graphics and Interaction, Czech Technical University in Prague, CTU in Prague, 2012.

[14] D. Sedláček and J. Žára. The Langweil Model of Prague - a Challenge for State-of-the-art 3D Reconstruction Techniques. In *EG 2011 - Posters*, pages 1–2, Aire-la-Ville, 2011. Eurographics Association.

[15] E. Dušková, D. Sedláček, and J. Žára. Interactive Modeling and Visualization of Virtual Urban Spaces. In *Workshop 2011,CTU Student Grant Competition in 2010 (SGS 2010)*, pages 1–17, Praha, 2011. ČVTVS.

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

[17] D. Sedláček and J. Žára. Graph Cut Based Point-Cloud Segmentation for Polygonal Reconstruction. In *Lecture Notes in Computer Science*, pages 218–227, Berlin, 2009. Springer.

[18] D. Sýkora, D. Sedláček, and K. Riege. Real-time Color Ball Tracking for Augmented Reality. In *Virtual Environments 2008. EGVE 2008 - EG Symposium Proceedings*, pages 9–16, Aire-la-Ville, 2008. Eurographics Association.

[19] D. Sedláček. Heuristic approach to automatic texture atlas composition. In *Proceedings of the 10th Central European Seminar on Computer Graphics (CESCG 2006)*, pages 153–160, Wien, 2006. Vienna University of Technology.