ChristophVogel

post-doctoral researcher, computer vision

date of birth
November 13, 1978

address
Institute for Computer
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nationality
german

languages
german (native)
english (professional)
french (school)

programming
C/C++, matlab, python, perl, qt, cuda, opengl, glsl

summary

I conducted my diploma thesis at the institute of graphics and geometry at RWTH Aachen. After my graduation I started working as a software developer in a start-up, Polymetric, which was specialized on optical 3D measuring systems. I was responsible for the acquisition device, developed for the EU project 3D-Face. I left after 3 years to begin my Ph.D. on the topic of 3D motion estimation (scene flow) at TU Darmstadt and one year later followed Professor Schindler to ETH Zurich. The key publication of my Ph.D. thesis was awarded with Marr Prize honorable mentions at ICCV 2013. The final model is among the state-of-the-art in motion estimation; leading the competition in the KITTI optical flow benchmark since 2013. The Ph.D. thesis was awarded with the DAGM MVTec Dissertationprice at GCPR 2016. I am currently employed at the Institute of Computer Graphics and Vision at TU Graz, where I work as a postdoctoral researcher since summer 2015 in the VLO group headed by Professor Pock.

research interests

3D scene flow, optical flow, machine learning, continuous & discrete optimization, 3D reconstruction, scene understanding

education

2009-2015	**Doctoral degree**	ETH Zurich
1999-2006	**Diploma in computer science**	RWTH Aachen

professional experience

2015-today	**Post-doctoral researcher**	TU Graz
2009-2015	**Research assistant** in computer vision	TU Darmstadt / ETH Zurich
2006-2009	**Polygon Technology, computer scientist** EU-project *3D-Face* - 3D face recognition for automated border control	Darmstadt
2009-today	**Reviewer** CVPR, ICCV, ECCV, 3DV, ISPRS Journal, ISPRS Congress, IEEE JSTARS	
2010,11,12,13,14	**Teaching assistant: Photogrammetry I & II**	ETH Zurich
SS 2010	**Teaching assistant: Computer vision I**	TU Darmstadt

awards

2013	**Marr Prize Honorable Mention** Piecewise Rigid Scene Flow	ICCV
2016	**DAGM-MVTec Dissertation Award** German Association for Pattern Recognition	GCPR
2016	**Outstanding Doctoral theses**	ETH Zurich

talks

2017	**A Neural Inference Machine for Low-Level Vision Problems**	Shape, Images and Optimization Workshop, Münster
2016	**Main Conference: Large-Scale Semantic 3D Reconstruction** (by M. Blaha)	CVPR
2015	**3D Scene Flow Estimation with a Piecewise Rigid Scene Model**	ICG, TU Graz
2015	**3D Scene Flow Estimation with a Piecewise Rigid Scene Model**	Bosch Automotive
2014	**Workshop: RMRC - Reconstruction Meets Recognition Challenge**	ECCV
2013	**Workshop: RMRC - Reconstruction Meets Recognition Challenge**	ICCV
2013	**Main Conference: Piecewise Rigid Scene Flow**	ICCV
2013	**Main Conference: A Data Cost Evaluation for Optical Flow**	GCPR
2012	**Main Conference: Optical Flow for Glacier Motion Estimation**	ISPRS Congress

publications

PhD thesis

Christoph Vogel. "Robust and Accurate 3D Motion Estimation Under Adverse Conditions". PhD thesis. Diss., Eidgenössische Technische Hochschule ETH Zürich, Nr. 22721, 2015.

journals

3D Scene Flow Estimation with a Piecewise Rigid Scene Model
Christoph Vogel, Konrad Schindler, Stefan Roth
International Journal of Computer Vision *(2015). Springer US, 2015*

international peer-reviewed conferences/proceedings

A Primal Dual Network for Low-Level Vision Problems
Christoph Vogel, Thomas Pock
German Conference on Pattern Recognition, 2017, Basel

Semantic 3D Reconstruction with Finite Element Bases
Christoph Vogel, Audrey Richard, Konrad Schindler, Thomas Pock
British Machine Vision Conference, 2017, London

Volumetric Flow Estimation for Incompressible Fluids using the Stationary Stokes Equations
Katrin Lasinger, Christoph Vogel, Konrad Schindler
International Conference on Computer Vision, 2017, Venice

Large-Scale Semantic 3D Reconstruction: an Adaptive Multi-Resolution Model for Multi-Class Volumetric Labeling
Maros Bláha, Christoph Vogel, Audrey Richard, Jan Dirk Wegner, Thomas Pock, Konrad Schindler
Conference on Computer Vision and Pattern Recognition, 2016, Las Vegas

View-Consistent 3D Scene Flow Estimation over Multiple Frames
Christoph Vogel, Stefan Roth, Konrad Schindler
European Conference on Computer Vision, 2014, Zürich

Piecewise Rigid Scene Flow
Christoph Vogel, Stefan Roth, Konrad Schindler
International Conference on Computer Vision, 2013, Sydney

An Evaluation of Data Costs for Optical Flow
Christoph Vogel, Stefan Roth, Konrad Schindler
German Conference on Pattern Recognition, 2013, Saarbruecken

Optical Flow For Glacier Motion Estimation
Christoph Vogel, Andreas Bauder, Konrad Schindler
International Society for Photogrammetry and Remote Sensing Congress, 2012, Melbourne

3D Scene Flow Estimation with a Rigid Motion Prior
Christoph Vogel, Stefan Roth, Konrad Schindler
International Conference on Computer Vision, 2011, Barcelona

GPU-Based Tolerance Volumes for Mesh Processing
Mario Botsch, David Bommes, Christoph Vogel, Leif Kobbelt
Pacific Conference on Computer Graphics and Applications, 2004

book chapters

3D Szenenfluss–bildbasierte Schätzung dichter Bewegungsfelder
Christoph Vogel, Stefan Roth, Konrad Schindler
Photogrammetrie und Fernerkundung, 2017

international abstract-reviewed conferences/proceedings

Variational 3D-PIV for incompressible fluid flow estimation
Katrin Lasinger, Christoph Vogel, Konrad Schindler
International Symposium on Particle Image Velocimetry, 2017, Busan

Piecewise Rigid 3D Scene Flow
Christoph Vogel, Stefan Roth, Konrad Schindler
Conference on Computer Vision and Pattern Recognition, Scene Understanding Workshop (SUNw), 2014, Columbus