

# Zuzana Kúkelová

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**Date of Birth:** 17 October 1981**Nationality:** Slovak**Cellphone:** +420 776 388 046**E-mail:** kukelova@cmp.felk.cvut.cz

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<b>Education:</b>	<b>2006 – 2013</b>	<b>CTU, Faculty of Electrical Engineering</b>	<b>Prague, CZE</b>
		<ul style="list-style-type: none"><li>○ Ph.D. student of Mathematical Engineering – <i>Computer Vision</i></li><li>○ defense of PhD thesis – Title: Algebraic Methods in Computer Vision</li></ul>	
	<b>2000 – 2005</b>	<b>Comenius university, Faculty of Mathematics, Physics and Informatics</b>	<b>Bratislava, SK</b>
		<ul style="list-style-type: none"><li>○ master degree (Mgr.) in Computer Science – <i>Specialization: Mathematics - Computer graphics and geometry, Informatics for mathematics</i></li><li>○ defense of Rigorous thesis (RNDr.) – <i>Specialization: Mathematics - Computer graphics and geometry</i></li></ul>	
	<b>1996 – 2000</b>	<b>Grammar School – Gymnázium Juraja Fándlyho</b>	<b>Šaľa, SK</b>

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<b>Praxis:</b>	<b>2005 – present</b>	<b>CTU, Faculty of Electrical Engineering</b>	<b>Prague, CZE</b>
		<ul style="list-style-type: none"><li>○ researcher in <i>Algebraic geometry in computer vision</i></li><li>○ contributor to EC funded projects<ul style="list-style-type: none"><li>▪ PRoVisG, DIRAC</li></ul></li><li>○ co-author of research code<ul style="list-style-type: none"><li>▪ <i>Automatic generator of minimal problem solvers</i> (Matlab)</li><li>▪ <i>Solvers for minimal relative and absolute pose problems</i> (MATLAB,C++)</li></ul></li><li>○ reviewer<ul style="list-style-type: none"><li>▪ <i>T-PAMI, IJCV, CVIU, CVPR, ECCV, ACCV</i></li></ul></li><li>○ teacher<ul style="list-style-type: none"><li>▪ <i>Labs in Computer Vision and Advanced Robotics</i></li></ul></li></ul>	

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<b>Skills:</b>	<b>Computer knowledge</b>
	<ul style="list-style-type: none"><li>○ <i>MATLAB, Maple, Macaulay 2, C, C++, HTML</i></li></ul>
	<b>Languages</b>
	<ul style="list-style-type: none"><li>○ English – communication knowledge, <i>general state exam</i></li><li>○ German – passive knowledge</li></ul>
	<b>H-index = 11, # of citations = 376</b> (source - Google Scholar),
	<b>Web of Science</b> (Cited Reference Search) = 67
	<b>Web of Science</b> (General Search) = 19, H-index = 3

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## Awards

- Dean price for prestigious PhD thesis
  - Spotlight Paper for the July 2012 issue of the IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)
  - 1st place at SlovakPrix MultiMedia 2005 in category Special award for students - Award of president of foundation Sovička Zdenky Kukanovej (for project SketchCo)
  - 1st place at SVOC 2005 Czech - Slovak final round - in section Applied Informatics
  - Tosiyasu Lawrence KUNII Award 2005
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## Publications

### Impacted journal articles

- [1] Z. Kukelova, M. Bujnak, and T. Pajdla. Polynomial eigenvalue solutions to minimal problems in computer vision. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 34(7):1381–1393, 2012. (Spotlight paper, IF 4.795)
- [2] Z. Kukelova and T. Pajdla. A minimal solution to radial distortion autocalibration. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 33(12):2410–2422, December 2011. (IF 4.908)
- [3] Z. Kukelova, M. Byröd, K. Josephson, T. Pajdla, and K. Åström. Fast and robust numerical solutions to minimal problems for cameras with radial distortion. *Computer Vision and Image Understanding*, 114(2):234–244, February 2010. (IF 2.404)

### Peer-reviewed journal articles

- [4] M. Bujnak, Z. Kukelova, and T. Pajdla. Efficient solutions to the absolute pose of cameras with unknown focal length and radial distortion by decomposition to planar and non-planar cases. *IPSJ Transaction on Computer vision and Application (CVA)*, 4:78–86, May 2012.

### Publications excerpted by WOS

- [5] Z. Kukelova, M. Bujnak, T. Pajdla, Real-time solution to the absolute pose problem with unknown radial distortion and focal length, In *IEEE International Conference on Computer Vision (ICCV'13)*, Sydney, Australia, 2013.
- [6] Z. Kukelova, J. Heller and T. Pajdla. Hand-Eye Calibration without Hand Orientation Measurement Using Minimal Solution. In *11th Asian Conference on Computer Vision (ACCV'12)*, 2012.
- [7] M. Bujnak, Z. Kukelova, and T. Pajdla. Making Minimal Solvers Fast. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR'12)*, 2012.
- [8] M. Bujnak, Z. Kukelova, and T. Pajdla. New efficient solution to the absolute pose problem for camera with unknown focal length and radial distortion. In *10th Asian Conference on Computer Vision (ACCV'10)*, volume 6492 of *Lecture Notes in Computer Science*, pages 11–24, 2011.

- [9] Z. Kukelova, M. Bujnak, and T. Pajdla. Closed-form solutions to minimal absolute pose problems with known vertical direction. In *10th Asian Conference on Computer Vision (ACCV'10)*, volume 6493 of *Lecture Notes in Computer Science*, pages 216–229, 2011.
- [10] M. Bujnak, Z. Kukelova, and T. Pajdla. 3D reconstruction from image collections with a single known focal length. In *IEEE International Conference on Computer Vision (ICCV'09)*, pages 1803–1810, 2009.
- [11] M. Bujnak, Z. Kukelova, and T. Pajdla. Robust focal length estimation by voting in multi-view scene reconstruction. In *9th Asian Conference on Computer Vision (ACCV'09)*, pages 13–24, 2009.
- [12] Z. Kukelova, M. Bujnak, and T. Pajdla. Automatic Generator of Minimal Problem Solvers. In *10th European Conference on Computer Vision (ECCV'08)*, volume 5304 of *Lecture Notes in Computer Science*, pages 302–315, 2008.
- [13] M. Byröd, Z. Kukelova, K. Josephson, T. Pajdla, and K. Åström. Fast and robust numerical solutions to minimal problems for cameras with radial distortion. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR'08), Vols 1-12*, pages 234–244, 2008. (oral presentation, acceptance ratio 4.0%)
- [14] M. Bujnak, Z. Kukelova, and T. Pajdla. A general solution to the p4p problem for camera with unknown focal length. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR'08), Vols 1-12*, pages 3506–3513, 2008.
- [15] Z. Kukelova and T. Pajdla. Two minimal problems for cameras with radial distortion. In *7th Workshop on Omnidirectional Vision, Camera Networks and Non-classical Cameras (OMNIVIS'07)*, 2007.
- [16] Z. Kukelova and T. Pajdla. A minimal solution to the autocalibration of radial distortion. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR'07)*, 2007.

#### **Other conference publications**

- [17] Z. Kukelova, P. Krsek, V. Smutny and T. Pajdla Groebner basis solutions to satellite trajectory control by pole placement. In *Proceedings of the Advanced Maui Optical and Space Surveillance Technologies Conference (AMOS'13)*, 2013.
- [18] Z. Kukelova, M. Bujnak, and T. Pajdla. Fast and stable algebraic solution to L2 three-view triangulation, In *International conference on 3d vision (3DV'13)*, Seattle, USA, June, 2013.
- [19] A. Torii, Z. Kukelova, M. Bujnak, and T. Pajdla. The six point algorithm revisited. In *10th Asian Conference on Computer Vision (ACCV'10 Workshop)*, volume 6469 of *Lecture Notes in Computer Science*, pages 184–193, 2011.
- [20] Z. Kukelova, M. Bujnak, and T. Pajdla. Polynomial eigenvalue solutions to the 5-pt and 6-pt relative pose problems. In *British Machine Vision Conference (BMVC'08)*, 2008.
- [21] Z. Kukelova and T. Pajdla. Solving polynomial equations for minimal problems in computer vision. In *Computer Vision Winter Workshop (CVWW'07)*, Graz, Austria, 2007.