Jan-Michael Frahm
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Education

- July 2005: **Dr.-Ing. (doctor in engineering)** in Computer-Science, Christian-Albrechts-University of Kiel, Department Multi-Media Information Systems, Thesis: **Camera Self-Calibration with known Camera Orientation**, Advisor: Prof. Dr.-Ing. Reinhard Koch, grade: summa cum laude
- December 1999: **Diploma in Computer Science** (minor subject: medical imaging and medical information processing) at the University of Lübeck, Thesis: **"Filtering and analysis of fluoroscopic images"**, grade equivalent to summa cum laude

Professional Experience (Positions)

- **Associate Professor at the University of North Carolina at Chapel Hill** heading the 3D Computer Vision group consisting of two postdoctoral researchers and nine Ph. D. students. (January 2014 - present)
- **Director of Computer Vision** at the Renaissance Computing Institut (RENCI) (February 2012- present)
- **Assistant Professor at the University of North Carolina at Chapel Hill** heading the 3D Computer Vision group consisting of two postdoctoral researchers and nine Ph. D. students. (July 2011 - December 2013)
- **Research Assistant Professor at the University of North Carolina at Chapel Hill** heading the 3D Computer Vision group consisting of two postdoctoral researchers and eight Ph. D. students. (May 2007 - June 2011)
- **Postdoctoral researcher at the University of North Carolina at Chapel Hill** in the UrbanScape project, in the Computer Vision group of Professor Marc Pollefeys. I locally managed the UrbanScape project for a team of two research staff members, four students and one additional postdoctoral researcher. (August 2005 - April 2007)
- **Research and teaching assistant** in the Department of Computer Science and Applied Mathematics of the Christian-Albrechts-University of Kiel, Multimedia Information Processing group of Professor Reinhard Koch. The main objectives of the research were structure from motion and camera self-calibration employing inertial sensors. (January 2000 - July 2005)

- **Intern at Microsoft Research Redmond** in the Interactive Visual Media Group on automatic detection and tracking of planes in image sequences for camera pose estimation (Mentor Dr. Rick Szeliski). (May 2004 - August 2004)

Honors/Awards

- ISPRS 2008 best poster award for "Image Localization in Satellite Imagery with Feature-based Indexing"
- Nvidia Professor fellowship on "Real-time Stereo for Vehicles on GPU"
- CVPR best demo award for "Real-time Urban Reconstruction"
- Best thesis of the academic year 2005/2006 of the College of Engineering of the Christian-Albrechts University Kiel

Publications

Journal Publications (refereed)

2014

- Chenxi Zhang, Jizhou Gao, Oliver Wang, Pierre Georgel, Pierre, Ruigang Yang, James Davis, Jan-Michael Frahm, and Marc Pollefeys, "Personal Photo Enhancement Using Internet Photo Collections", in IEEE Transactions on Visualization Computer Graphics, (*Feature article Feb. 2014*)

2013

- Yi Xu, Gerardo Reynaga, Sonia Chiasson, Jan-Michael Frahm, Fabian Monrose, Paul Van Oorschot, "Security and Usability Challenges of Moving-Object CAPTCHAs: Decoding Codewords in Motion", in IEEE Transactions on Dependable and Secure Computing, (Online vor Publikation)
- Rahul Raguram, Ondrej Chum, Marc Pollefeys, Jiri Matas and Jan-Michael Frahm"USAC: A Universal Framework for Random Sample Consensus", IEEE Transactions on Pattern Analysis and Machine Intelligence
- "On the Privacy Risks of Virtual Keyboards: Automatic Reconstruction of Typed Input from Compromising Reflections", Rahul Raguram, Andrew M White, Yi Xu, jan-Michael Frahm, Pierre Georgel, and Fabian Monrose, IEEE Transactions on Dependable and Secure Computing, 10 (3), 154-167, 2013
- "Geo-registered 3D models from crowdsourced image collections" JM Frahm, J Heinly, E Zheng, E Dunn, P Fite-Georgel, M Pollefeys Geo-spatial Information Science 16 (1), 55-60
- "Smart instrumented training ranges: bringing automated system solutions to support critical domain needs", Sadagic, Amela, Kölsch, Mathias, Welch, Greg, Basu, Chumki, Darken, Chris, Wachs, Juan P, Fuchs, Henry, Towles, Herman, Rowe, Neil and Frahm, Jan-Michael, The Journal of Defense Modeling and Simulation: Applications, Methodology, Technology, pub. date 2/21/2013, SAGE Publications
- Jan-Michael Frahm, Jared Heinly, Enliang Zheng, Enrique Dunn, Pierre Fite-Georgel, Marc Pollefeys, "Geo-Registered 3D Models from Crowdsourced Image Collections", in Geo-spatial Information Science, 16 (1), 55-60

2012

- J. Lim, J.-M. Frahm, M. Pollefeys, "Online Environment Mapping using Metric-topological Maps", International Journal of Robotics Research (IJRR), Special Issue on 3D Exploration Mapping, and Surveillance, 31 (12), 1394-1408, 2012
- W. Gaviao Neto, J. Scharcanskia, J.-M. Frahm, M. Pollefeys, Hysteroscopy Video Summarization and Browsing by Estimating the Physician's Attention on Video Segments, Medical Image Analysis Journal, 16(1):160-76, 2012

2011

- Rahul Raguram, Changchang Wu, Jan-Michael Frahm, and Svetlana Lazebnik, "Modeling and Recognition of Landmark Image Collections Using Iconic Scene Graphs", International Journal of Computer Vision, 95 (3), pp. 213-239, April 2011
- Stuart Heinrich, Wesley Snyder, Jan-Michael Frahm "Maximum Likelihood Auto-calibration", In journal of Image and Vision Computing, 29 (10), pp. 653-665, 2011
- S. Sinha, J.-M. Frahm, M. Pollefeys, Y. Genc, "Feature Tracking and Matching in Video Using Programmable Graphics Hardware", Journal of Machine Vision and Application, 22 (1), pp. 207-217, 2011
- Marc Pollefeys, Jan-Michael Frahm, Friedrich Fraundorfer, Christopher Zach, Changchang Wu, Brian Clipp, David Gallup, "Challenges in wide-area structure-from-motion", MIRU 2011 special issues of IPSJ Transactions on Computer Vision and Applications, pp. 535-555, 2011

2010

- Jan-Michael Frahm, Marc Pollefeys, Svetlana Lazebnik, Christopher Zach, David Gallup, Brian Clipp, Rahul Raguram, Changchang Wu, Tim Johnson, "Fast Robust Large-scale Mapping from Video and Internet Photo Collections", In special issue 100 years of ISPRS of the ISPRS Journal of Photogrammetry and Remote Sensing, 65 (6), pp. 538-549
- Seon Joo Kim, David Gallup, Jan-Michael Frahm, Marc Pollefeys, "Joint Radiometric Calibration and Feature Tracking System with an Application to Stereo", Journal Computer Vision and Image Understanding, 114 (5), 574-582, 2010
- Marc Pollefeys, Jan-Michael Frahm, Friedrich Fraundorfer, Christopher Zach, Changchang Wu, Brian Clipp, David Gallup, "Challenges in Wide-area Structure-from-motion", IPSJ Transactions on Computer Vision and Applications, 2 (0), pp. 105-120, 2010

2008

- M. Pollefeys, D. Nister, J.-M. Frahm, A. Akbarzadeh, P. Mordohai, B. Clipp, C. Engels, D. Gallup, S.-J. Kim, P. Merrell, C. Salmi, S. Sinha, B. Talton, L. Wang, Q. Yang, H. Stewenius, R. Yang, G. Welch, H. Towles,"Detailed Real-Time Urban 3D Reconstruction From Video, International Journal of Computer Vision (**IJCV**) special issue on Modeling Large-Scale 3D Scenes", 78 (2), 143-167, 2008

Conference Publications (refereed)

2014

- Ke Wang, Enrique Dunn, Joseph Tighe, Jan-Michael Frahm, "Combining Semantic Scene Priors and Haze Removal for Single Image Depth Estimation", IEEE Winter Applications of Computer Vision Conference
- Songwoo Cho, Enrique Dunn, Jan-Michael Frahm, "Rotation Estimation from Cloud Tracking", IEEE Winter Applications of Computer Vision Conference

2013

- Y. Xu, J. Heinly, A.M. White, F. Monrose, J.-M. Frahm, "Seeing Double - Reconstructing Obscured Typed Input from Repeated Compromising Reflections", in ACM SIGSAC Conference on Computer & Communications Security, (acceptance rate 19%)
- M. Dou, H. Fuchs, J.-M. Frahm, "Scanning and tracking dynamic objects with commodity depth cameras", in IEEE International Symposium on Mixed and Augmented Reality (ISMAR)
- D. Roberts, A. Menozzi, J. Cook, T. Sherrill, S. Snarski, P. Russler, B. Clipp, R. Karl, E. Wenger, M. Bennett, J. Mauger, W. Church, H. Towles, S. MacCabe, J. Webb, J. Lupo, J.-M. Frahm, E. Dunn, C. Leslie, G. Welch, "Testing and Evaluation of a Wearable Augmented Reality System for Natural Outdoor Environments", in SPIE Defense, Security, and Sensing
- A. Sadagic, M. Kölsch, G. Welch, C. Basu, C. Darken, J. P. Wachs, H. Fuchs, H. Towles, N. Rowe, J.-M. Frahm, L. Guan, R. Kumar, H. Cheng, "Smart instrumented training ranges: bringing automated system solutions to support critical domain needs", in The Journal of Defense Modeling and Simulation: Applications, Methodology, Technology

2012

- J. Heinly, E. Dunn, and J. M. Frahm, "Comparative Evaluation of Binary Features," European Conference on Computer Vision (ECCV), pp. 759-773, 2012
- Enliang Zheng, Enrique Dunn, Rahul Raguram and Jan-Michael Frahm, "Efficient and Scalable Depthmap Fusion" British Machine Vision Conference (BMVC), Sep. 2012.
- Rahul Raguram, Joseph Tighe, and Jan-Michael Frahm, "Improved Geometric Verification for Large Scale Landmark Image Collections", British Machine Vision Conference (BMVC), 2012
- Y. Xu, G. Reynaga, S. Chiasson, J.-M. Frahm, F. Monrose, and P. van Oorschot, "Security and Usability Challenges of Moving-Object CAPTCHAs: Decoding Codewords in Motion", Usenix Security, 2012
- Yilin Wang, Enrique Dunn, Jan-Michael Frahm, "Increasing the Efficiency of Local Stereo by Leveraging Smoothness Constraints", 3DimPVT, pp. 246-253, 2012
- Mingsong Dou, Ying Shi, Jan-Michael Frahm, Henry Fuchs, Bill Mauchly and Mod Marathe, "Room-sized Informal Telepresence System", IEEE Virtual Reality, pp. 15-18, 2012
- Mingsong Dou, Li Guan, Jan-Michael Frahm, Henry Fuchs, "Exploring High-Level Plane Primitives for Indoor 3D Reconstruction with a Hand-held RGB-D Camera", workshop on Color Depth Fusion in Computer at Asian Conference Computer Vision (ACCV), pp. 94-108

2011

- Rahul Raguram, Andrew White, Dibyendusekhar Goswami, Fabian Monrose and Jan-Michael Frahm, "iSpy: Automatic Reconstruction of Typed Input from Compromising Reflections", ACM Conference on Computer and Communications Security (CCS), pp. 527-536, 2011 (14% acceptance rate).
- Rahul Raguram and Jan-Michael Frahm. "RECON: Scale-Adaptive Robust Estimation via Residual Consensus." ICCV, pp. 1299-1306, 2011 (oral acceptance rate 5%)
- Enrique Dunn, Brian Clipp, and Jan-Michael Frahm, "A geometric solver for stereo egomotion", ICCV 2011, pp. 1187-1194, (acceptance rate 25%)

- Jongwoo Lim, Marc Pollefeys and Jan-Michael Frahm, "Online Environment Mapping", IEEE Conference Computer Vision and Pattern Recognition, pp. 3489-3496 (**CVPR 2011, acceptance rate 26%**)
- Changchang Wu, Jan-Michael Frahm, Marc Pollefeys, " Repetition-based Dense Single-View Reconstruction", IEEE Conference Computer Vision and Pattern Recognition (**CVPR 2011, acceptance rate 26%**)
- Yi-Hung Jen, Enrique Dunn, Jan-Michael Frahm, "Adaptive Scale Selection for Hierarchical Stereo", In proceedings of British Machine Vision Conference 2011
- Enliang Zheng, Rahul Raguram, Pierre Fite-Georgel, and Jan-Michael Frahm "Efficient generation of multi-perspective panoramas", pp. 86-92, 3DimPVT 2011
- Yilin Wang, Enrique Dunn, and Jan-Michael Frahm"An approach for shape from surface normals with local discontinuity detection", pp. 188-195, 3DimPVT 2011
- Falko Schindler, Jan-Michael Frahm, Wolfgang Förstner, "Classification and Reconstruction of Surfaces from Point Clouds of Man-made Objects", In proceedings of ICCV workshop on Computer Vision for Remote Sensing of the Environment, pp. 257-263, 2011
- Andrew M White, Srinivas Krishnan, Michael Bailey,Fabian Monrose, Phillip Porras, Rahul Raguram, Dibyendusekhar Goswami, Jan-Michael Frahm, Austin R Matthews, Kevin Z. Snow,'Clear and Present Data: Opaque Traffic and its Security Implications for the Future", Proceedings of the 18th ACM Conference on Computer and Communications Security, 2011

2010

- Jan-Michael Frahm, Pierre Georgel, David Gallup, Tim Johnson, Rahul Raguram, Changchang Wu, Yi-Hung Jen, Enrique Dunn, Brian Clipp, Svetlana Lazebnik, Marc Pollefeys, Building Rome on a Cloudless Day, European Conference Computer Vision, pp. 368-381 (**ECCV 2010, acceptance rate 27.6%**)
- Changchang Wu, Jan-Michael Frahm, Marc Pollefeys, Detecting Large Repetitive Structures with Salient Boundaries, European Conference Computer Vision, pp. 142-155 (**ECCV 2010, acceptance rate 27.6%**)
- David Gallup, Jan-Michael Frahm, Marc Pollefeys, "Piecewise Planar and Non-Planar Stereo for Urban Scene Reconstruction", IEEE Conference Computer Vision and Pattern Recognition, pp. 1418-1425 (**CVPR 2010, oral acceptance rate 4.5%**)
- Brian Clipp, Jongwoo Lim, Jan-Michael Frahm, Marc Pollefeys, "Parallel, Real-Time Visual SLAM", In Proceedings of International Conference on Intelligent Robots and Systems, pp. 3961-3968, 2010
- David Gallup, Marc Pollefeys, Jan-Michael Frahm, "3D Reconstruction using an n-Layer Heightmap", DAGM 2010
- David Gallup, Jan-Michael Frahm, Marc Pollefeys, "A Heightmap Model for Efficient 3D Reconstruction from Street-Level Video", International Symposium for 3D Data Processing, Visualization and Transmission (3DPVT) 2010
- Jan-Michael Frahm, Pierre Georgel, David Gallup, Tim Johnson, Rahul Raguram, Changchang Wu, Yi-Hung Jen, Enrique Dunn, Brian Clipp, Svetlana Lazebnik, Marc Pollefeys, "Dense Reconstructions from Millions of Images on a Single PC", Demo at IEEE Conference Computer Vision and Pattern Recognition (**CVPR**) 2010

- Timothy Johnson, Rahul Raguram, Pierre Georgel, Jan-Michael Frahm, "Fast Organization of Large Photo Collections using CUDA", ECCV workshop for Computer Vision on GPUs
- Richard Steffen, Jan-Michael Frahm, Wolfgang Forstner, "Trifocal Constraint based Relative Bundle Adjustment", ECCV workshop on Reconstruction and Modeling of Large-Scale 3D Virtual Environments
- Pierre Fite-Georgel, Timothy Johnson, Jan-Michael Frahm, "City-Scale Reality Modeling from Community Photo Collection", ISMAR 2010 workshop on Augmented Reality Super Models

2009

- Rahul Raguram, Jan-Michael Frahm, Marc Pollefeys,"Exploiting Uncertainty in Random Sample Consensus", In Proceedings of the IEEE International Conference Computer Vision, pp. 2074-2081 (**ICCV 2009, acceptance rate 23.2%**)
- Brian Clipp, Christopher Zach, Jan-Michael Frahm, Marc Pollefeys, "A New Minimal Solution to the Relative Pose of a Calibrated Stereo Camera with Small Field of View Overlap", In Proceedings of the IEEE International Conference Computer Vision, pp. 1725-1732 (**ICCV 2009, acceptance rate 23.2%**)
- Arnold Irschara, Christopher Zach, Jan-Michael Frahm, Horst Bischof, "3D Scene Summarization for Efficient View Registration", In Proceedings of the IEEE conference Computer Vision and Pattern Recognition (**CVPR 2009, acceptance rate 26.0%**) , pp. 2599-2606
- Christopher Zach, Marc Niethammer, and Jan-Michael Frahm, "Continuous Maximal Flows and Wulff Shapes: Application to MRFs", In Proceedings of the IEEE conference Computer Vision and Pattern Recognition, pp. 1911-1918 (**CVPR 2009, acceptance rate 26.0%**)
- Hua Yang, Greg Welch, Jan-Michael Frahm, Marc Pollefeys, "3D motion segmentation using intensity trajectory", In Proceedings of Asian Conference Computer Vision, pp. 157-168 (**ACCV 2009, oral acceptance rate 5.2%**)
- Enrique Dunn, Jan-Michael Frahm, "Next best view planning for active model improvement", In Proceedings of British Machine Vision Conference, 2009
- Enrique Dunn, Jur van Berg, Jan-Michael Frahm, "Developing Visual Sensing Strategies through Next Best View Planning", In Proceedings of International Conference on Intelligent Robots and Systems, pp. 4001-4008, 2009
- Jan-Michael Frahm, Marc Pollefeys, Brian Clipp, David Gallup, Rahul Raguram, Changchang Wu and Christopher Zach"3D Reconstruction of architectural scenes from uncalibrated video sequences", In Proceedings of ISPRS workshop 3DARCH'09
- Brian Clipp, Christopher Zach, Jongwoo Lim, Jan-Michael Frahm and Marc Pollefeys, "Adaptive, Real-Time Visual Simultaneous Localization and Mapping", In Proceedings of IEEE Workshop on Applications of Computer Vision (WACV), 2009
- David Gallup, Jan-Michael Frahm, Marc Pollefeys, "Real-time Depth Boundary Optimization for Local Area-based Sereo", In Proceedings of 3D Media 2009

2008

- Rahul Raguram, Jan-Michael Frahm, Marc Pollefeys, "A Comparative Analysis of RANSAC Techniques Leading to Adaptive Real-Time Random Sample Consensus", European Conference Computer Vision (**ECCV 2008, acceptance rate 27.9%**)
- Xiaowei Li, Changchang Wu, Christopher Zach, Svetlana Lazebnik, Jan-Michael Frahm, "Modeling and Recognition of Landmark Image Collections Using Iconic Scene Graphs", European Conference Computer Vision (**ECCV 2008, acceptance rate 27.9%**)
- Changchang Wu, Brian Clipp, Xiaowei Li, Jan-Michael Frahm, Marc Pollefeys, "3D Model Matching with Viewpoint Invariant Patches (VIPs)", IEEE conference Computer Vision and Pattern Recognition (**CVPR 2008, oral acceptance rate 4%**).
- Ram Krishan Kumar, Adrian Ilie, Jan-Michael Frahm, Marc Pollefeys, "Simple calibration of non-overlapping cameras with a mirror", IEEE conference Computer Vision and Pattern Recognition (**CVPR 2008, oral acceptance rate 4%**).
- David Gallup, Jan-Michael Frahm, Philippos Mordohai, Marc Pollefeys, "Variable Baseline/ Resolution Stereo", IEEE conference Computer Vision and Pattern Recognition (**CVPR 2008, oral acceptance rate 4%**).
- Seon Joo Kim, Jan-Michael Frahm, Marc Pollefeys, "Radiometric Calibration with Illumination Change for Outdoor Scene Analysis", IEEE conference Computer Vision and Pattern Recognition (**CVPR 2008, acceptance rate 29.5%**).
- Changchang Wu, Jan-Michael Frahm, Friedrich Frauendorfer, and Marc Pollefeys, "Image Localization in Satellite Imagery with Feature-based Indexing", Conference of the International Society for Photogrammetry and Remote Sensing 2008, (**winner of the best poster award**).
- Brian Clipp, Jan-Michael Frahm, Marc Pollefeys, Jae-Hak Kim, Richard Hartley, "Robust 6DOF Motion Estimation for Non-Overlapping Multi-Camera Systems", IEEE 2008 Workshop on Application of Computer Vision.
- Friedrich Frauendorfer, Changchang Wu, Jan-Michael Frahm and Marc Pollefeys, "Visual Word based Location Recognition in 3D models using Distance Augmented Weighting", International Symposium on 3D Data Processing, Visualization and Transmission 2008.
- Greg Coombe, Jan-Michael Frahm and Anselmo Lastra, "Capturing a Surface Light Field Under Virtual Illumination", International Symposium on 3D Data Processing, Visualization and Transmission 2008.
- Christopher Zach, David Gallup and Jan-Michael Frahm, "Fast Gain-Adaptive KLT Tracking on the GPU", CV GPU' 08 workshop in conjunction with IEEE Conference Computer Vision and Pattern Recognition 2008.
- Changchang Wu, Friedrich Fraundorfer, Jan-Michael Frahm and Marc Pollefeys, "3D Model Search and Pose Estimation from Single Images using VIP Features", S3D workshop in conjunction with IEEE conference Computer Vision and Pattern Recognition 2008.
- Christopher Zach, David Gallup, Jan-Michael Frahm, Marc Niethammer, "Fast Global Labeling for Real-Time Stereo Using Multiple Plane Sweeps", Vision Modeling and Visualization, pp. 243-250, 2008, Konstanz, Germany

2007

- Paul Merrell, Amir Akbarzadeh, LiangWang, PhilipposMordohai, Jan-Michael Frahm, Ruigang Yang, David Nister, and Marc Pollefeys, "Real-Time Visibility-Based Fusion of Depth Maps", IEEE International Conference on Computer Vision (**ICCV 2007, acceptance rate 23.5%**).
- Seon Joo Kim, Jan-Michael Frahm, and Marc Pollefeys, "Joint Feature Tracking and Radiometric Calibration from Auto-Exposure Video", IEEE International Conference on Computer Vision (**ICCV 2007, acceptance rate 23.5%**).
- Hua Yang, Marc Pollefeys, Greg Welch, Jan-Michael Frahm, and Adrian Ilie, "Differential camera tracking through linearizing the local appearance manifold", IEEE conference Computer Vision and Pattern Recognition (**CVPR 2007, oral acceptance rate 4%**).
- D. Gallup, J.-M. Frahm, P. Mordohai, Q. Yang, M. Pollefeys, "Real-Time Plane-sweeping Stereo with Multiple Sweeping Directions", IEEE Conference on Computer Vision and Pattern Recognition (**CVPR 2007, acceptance rate 27.5%**).
- Brian Clipp, Greg Welch, Jan-Michael Frahm, and Marc Pollefeys, "Structure From Motion via a Two-Stage Pipeline of Extended Kalman Filters", British Machine Vision Conference, pp. 10-13, 2007.
- Jae-Hak Kim, Richard Hartley, Jan-Michael Frahm, and Marc Pollefeys, "Visual Odometry for Non-Overlapping Views Using Second-Order Cone Programming", Asian Conference Computer Vision 2007.
- Paul Merrell, Philippos Mordohai, Jan-Michael Frahm and Marc Pollefeys, "Evaluation of Large Scale Scene Reconstruction", VRML in conjunction with IEEE International Conference on Computer Vision 2007.
- S. J. Kim, D. Gallup, J.-M. Frahm, A. Akbarzadeh, Q. Yang, R. Yang, D. Nister, M. Pollefeys, "Gain Adaptive Real-Time Stereo Streaming", International Conference on Computer Vision Systems, 2007
- Philippos Mordohai, Jan-Michael Frahm, Amir Akbarzadeh, Brian Clipp, Chris Engels, David Gallup, Paul Merrell, Christina Salmi, Sudipta Sinha, Brad Talton, Liang Wang, Qing-Xiong Yang Yang, Henrik Stewenius, Herman Towles, Greg Welch, Ruigang Yang, Marc Pollefeys, and David Nister, "Real-time video-based reconstruction of urban environments", ISPRS Working Group V/4 Workshop 3D Virtual Reconstruction and Visualization of Complex Architectures, (ETH Zurich, Switzerland), July 2007.

2006

- Jan-Michael Frahm and Marc Pollefeys "RANSAC for (Quasi-)Degenerate data (QDEGSAC)", IEEE conference Computer Vision and Pattern Recognition, pp. 453-460 (**CVPR 2006, oral acceptance rate 4%**)
- Sudipta Sinha, Jan-Michael Frahm, Marc Pollefeys and Yakup Genc, "GPU based video feature tracking and matching", EDGE 2006
- Jan-Michael Frahm, Greg Coombe and Anselmo Lastra, "Captureing Surface Light Fields of Real Objects with a Projector Camera System", CVPR 2006 workshop ProCams

2005

- Jan-Michael Frahm, Kevin Köser, Daniel Grest and Reinhard Koch, "Markerless Augmented Reality with Light Source Estimation for Direct Illumination", Conference on Visual Media Production 2005,Dec., London, UK
- Reinhard Koch, Jan-Friso Evers-Senne, Jan-Michael Frahm, Kevin Köser, "3D Reconstruction and Rendering from Image Sequences", *WIAMIS 2005*, Switzerland, April 2005
- Jan-Michael Frahm, "Camera Self-Calibration with known Camera Orientation", Ph.D. Thesis, Shaker Verlag, ISBN 3-8322-4153-1

2004

- Jan-Michael Frahm and Reinhard Koch, "Pose estimation for a Multi-Camera System", DAGM (German Pattern Recognition Conference), pp. 286-293, 2004

2003

- Jan-Michael Frahm and Reinhard Koch, "Camera Calibration with known Rotation", International Conference Computer Vision, pp. 1418-1425 (**ICCV 2003, acceptance rate 20.6%**)
- Jan-Michael Frahm and Reinhard Koch, "Camera Calibration and 3D Scene Reconstruction from image sequence and rotation sensor data", 8th International Workshop on Vision, Modeling, and Visualization 2003
- Daniel Grest, Jan-Michael Frahm, and Reinhard Koch, "A Color Similarity Measure for Robust Shadow Removal in Real Time", 8th International Workshop on Vision, Modeling, and Visualization, pp. 253-260, 2003
- Jan-Michael Frahm and Reinhard Koch, "Robust Camera Calibration from Images and Rotation Data", DAGM (German Pattern Recognition Conference)

2002

- Jan-Friso Evers Senne, Jan-Michael Frahm, Felix Woelk, Jan Woetzel, Reinhard Koch, "Distributed Realtime Interaction and Visualization System", 7th International Workshop on Vision, Modeling and Visualization 2002
- Reinhard Koch, Jan-Michael Frahm, Jan-Friso Evers Senne, Jan Woetzel, "Plenoptic Modeling of 3D scenes with a Sensor-augmented Multi-Camera Rig", Tyrrhenian International Workshop on Digital Communication (IWDC 2002)
- Jan-Michael Frahm, Jan-Friso Evers-Senne, and Reinhard Koch, "Network Protocol for Interaction and Scalable Distributed Visualization", 1st International Symposium on 3D Data Processing Visualization Transmission 2002

2001

- Reinhard Koch and Jan-Michael Frahm "Visual-Geometric Scene Reconstruction from Image Streams", 6th International Workshop on Vision, Modeling and Visualization 2001

2000

- Claudia Mayntz, Til Aach, Dietmar Kunz and Jan-Michael Frahm "Motion blur in fluoroscopy: effects, identification, and restoration", SPIE's Medical Imaging 2000
- Claudia Mayntz, Jan-Michael Frahm, Til Aach, and Dietmar Kunz "Beschleunigung und Bewertung blockbasierter Bewegungsschätzmethoden für die Röntgen- fluoroskopie" DAGM (German Pattern Recognition Conference), pp. 123-130, 2000

Book Chapter

- Chapter on "Urban 3D Reconstruction" in "Intelligent Video Surveillance: Systems and Technologies", Editors Qian and Ma, CRC Press

Invited Papers

- Jan-Michael Frahm, Pierre Fite-Georgel, Enrique Dunn, "State of the Art and Challenges in Crowd Sourced Modeling", In proceedings of Photogrammetric week 2011
- Jan-Michael Frahm, Marc Pollefeys, Svetlana Lazebnik, Brian Clipp, David Gallup, Rahul Raguram, Changchang Wu, "Fast Robust Reconstruction of Large Scale Environments", CISS 2010
- Brian Clipp, Rahul Raguram, Jan-Michael Frahm, Greg Welch, and Marc Pollefeys, "A Mobile 3D City Reconstruction System", IEEE conference on Virtual Reality workshop on Cityscapes.
- A. Akbarzadeh, J.-M. Frahm, et al., P. Mordohai, C. Engels, B. Clipp, Q. Yang, S. Sinha, L. Wang, D. Gallup, R. Yang, P. Merrell, B. Talton, M. Phelps, H. Stewenius, G. Welch and H. Towles, D. Nistér, M. Pollefeys, "Towards Urban 3D Reconstruction From Video", International Symposium on 3D Data Processing Visualization Transmission, pp. 1-8, 2006
- Jan-Michael Frahm, J.-F. Evers-Senne, and R. Koch, "Distributed Interaction Processing and Visualization of 3D Scenes in Real-time", 3rd, International Symposium on Image and Signal Processing and Analysis, 2003

Professional Experience and Projects

- **Technical work package leader** for "Offline 3D-Scene Reconstruction" in EU-project MATRIS (Markerless real-time Tracking for Augmented Reality Image Synthesis www.ist-matris.org). (September 2004 - July 2005)
- **Development and design of 3D-reconstruction software** for uncalibrated structure from motion at the Christian-Albrechts-University of Kiel in the Multimedia Information Processing group. The software is now used as basic 3D-reconstruction module of the MARTIS and ARTESAS projects. (January 2003 - January 2004)
- **Project study for Daimler-Chrysler AG** about *"Monoscopic driver assistant systems"*. (January 2001 - March 2001)
- **Setup of Multimedia Laboratory** at the Christian-Albrechts-University of Kiel. The lab consists of a stereo back projection system driven by a PC-cluster based render platform. (February 2001 - January 2002)

- **Developer of the LGPL library BIAS** for image processing and multi-view geometry. (January 2002 - present)

Editing/Chairing/Organizing

- **Editor in Chief** for Elsevier Journal of Image and Vision Computing (2010-present)
- **Area Chair ECCV 2014**
- **Demo Chair ECCV 2014**
- **Program Chair 3DIMPVT 2012**
- **Co-chair International Society for Photogrammetry and Remote Sensing (ISPRS)** working group WG III/4 - Complex scene Analysis and 3D reconstruction
- Associate Editor of Elsevier Journal of Image and Vision Computing (2009-2010)
- Demo chair IEEE conference on Computer Vision and Pattern Recognition (CVPR) 2009
- Area chair for Asian Conference Computer Vision (ACCV) 2009
- Organizer IEEE Motion Workshop together with Pierre Georgel (UNC Chapel Hill, USA) and Nathan Jacob (University of Kentucky, USA)
- Organizer of workshop on "Computer vision on GPU's" held in conjunction with ECCV 2010 together with Marc Pollefeys (ETH Zürich, Switzerland) and Horst Bischof (Technological University of Graz, Austria).
- Organizer of workshop on "Computer vision on GPU's" held in conjunction with CVPR 2008 together with Marc Pollefeys (ETH Zürich, Switzerland) and Mubarak Shah (University of Central Florida, USA).
- Organizer of ICCV 2007 workshop about "Virtual Representations and Modeling of Large - scale environments (VRML)" together with Marc Pollefeys (ETH Zurich, University of North Carolina at Chapel Hill), Frank Dallaert (Georgia Tech, USA), and Jana Kosecka (George Mason University, USA).

Invited Talks (selected)

- "Fast and Scalable Crowd Sourced Image Registration and Dense Reconstruction of the World", keynote in the Tracking workshop at the International Symposium on Mixed and Augmented Reality , (ISMAR 2012)
- "State of the Art and Challenges in Crowd Sourced Modeling", key note at Photogrammetric week 2011
- "Fast, Scalable, Reconstruction of the World from Photo Collections", Imperial College London, UK, 2011
- "Reconstructing the World from Photos and Videos", ETH Zurich, 2011
- "Fast Organization and Dense Reconstruction of the World from Photo Collections (Building Rome on a Cloudless Day)", Microsoft Research, USA, 2010

- "State of the art in Computer Vision based map building", keynote Dagstuhl seminar on *dynamic maps*, Germany 2010
- "Reconstructing the World from Photos (Building Rome on a Cloudless Day)", Google, USA, 2010
- "Dense Models of the World from Photos", RWTH Aachen, Germany, 2010
- "Building Rome on a Cloudless Day", Shenzhen Institutes of Advanced Technologies, China, 2010
- "Robust Scalable Reconstruction from Video and Photos", University of Bonn, Germany, 2010
- "Fast Reconstruction of the World from Photos and Videos", TU Munich, Germany, 2009
- "Scalable, Robust, Real-time 3D Reconstruction", University of Bonn, Germany, 2009
- "Image based 3D Real-time Reconstruction", Sarnoff Corporation, NJ, USA, 2009
- "The status and future of (semi-)automatic image based reconstruction", keynote at ISPRS Working Group V/4 Workshop 3D Virtual Reconstruction and Visualization of Complex Architectures 2009, Italy
- "Fast 3D reconstruction from video", Lockheed Martin, VA, 2009
- "Real-Time Scene Urban Scene Reconstruction with a Single Camera", seminar at the National Institute of Aerospace, Hampton, 2008
- "Large Scale Scene Reconstruction for videos and photo collections", ETH Zurich, Switzerland, 2008
- Invited lecture at ETH Zurich on "Tracking and matching for Computer Vision", ETH Zurich, Switzerland, 2008
- "Real-Time Large Scale Scene Reconstruction", Chritian-Albrechts University of Kiel, 2008
- "3D Reconstruction for Mobile Applications", Nokia Research, Palo Alto, 2008
- "An Introduction to CUDA for Automotive Applications", NVISION'08, San Jose, USA, 2008
- "3D Vision for Driver Assistance", Daimler Chrysler, Esslingen, Germany, 2008
- "Fast 3D Modeling and Applications", Max-Plank Institute, Saarbrücken, Germany, 2006
- "Fast 3D Urban Reconstruction and Applications", Microsoft Research, Redmond, USA, 2006

Patents & Open source

- Stereo estimation on GPU in CUDA as part of NVidia's SDK at openvidia.sourceforge.net
- GPU-KLT tracking software
- BIAS software package for computer vision
- Patent No: DE 103 400 23.0 "Verfahren zur Kamerakalibrierung mittels Rotationssensor"(camera calibration with known rotation) 2004 Germany
- Patent "Framework for Augmented Reality Applications", Germany, US-patent in processing