

References

- [1] S. Ramos, S. Gehrig, U. Pinggera, P. and Franke, and C. Rother, “Detecting unknown obstacles for self-driving cars: Fusing deep learning and geometric modeling,” in *IV 2017*, June 2017.
- [2] S. Ramos, P. Pinggera, S. Gehrig, U. Franke, and C. Rother, “Detecting unexpected obstacles for self-driving cars: Fusing deep learning and geometric modeling,” in *demonstrated at NIPS 2016*, December 2016.
- [3] S. Gehrig, S. Ramos, P. Pinggera, and U. Franke, “Small road hazard detection - a must for self-driving vehicles,” in *32. VDI Fachtagung Fahrerassistenz 2016*, November 2016.
- [4] P. Pinggera, S. Ramos, S. Gehrig, U. Franke, C. Rother, and R. Mester, “Lost and found: Detecting small road hazards for self-driving vehicles,” in *IROS 2016*, October 2016.
- [5] S. Gehrig and U. Franke, *Handbook of Driver Assistance Systems*, ch. Stereo Vision for ADAS. Springer, 2016.
- [6] S. Gehrig, R. Stalder, and N. Schneider, “A flexible high-resolution real-time low-power stereo vision engine,” in *ICVS 2015*, pp. 69–79, July 2015.
- [7] U. Franke and S. Gehrig, *Handbuch Fahrerassistenzsysteme*, ch. Stereosehen fuer Fahrerassistenzsysteme, pp. 400–422. 3. Auflage, Springer, 2015.
- [8] S. Gehrig, N. Schneider, and U. Franke, “Exploiting traffic scene disparity statistics for stereo vision,” in *Embedded Computer Vision @CVPR*, 2014.
- [9] S. Gehrig, M. Reznitskii, N. Schneider, U. Franke, and J. Weickert, “Priors for stereo vision under adverse weather conditions,” in *Computer Vision for Autonomous Driving@ICCV*, 2013.
- [10] U. Franke and S. Gehrig, “How cars learned to see,” in *54. Photogrammetrische Woche*, 2013.
- [11] D. Pfeiffer, S. Gehrig, and N. Schneider, “Exploiting the power of stereo confidences,” in *CVPR*, June 2013.
- [12] S. Gehrig, A. Barth, and J. Schneider, N. Siegemund, “A multi-cue approach for stereo-based object confidence estimation,” in *Intelligent Robots and Systems (IROS) 2012*, October 2012.
- [13] N. Schneider, S. Gehrig, D. Pfeiffer, and K. Banitsas, *Outdoor and Large-Scale Real-World Scene Analysis*, ch. An Evaluation Framework for Stereo-Based Driver Assistance, pp. 27–51. LNCS No. 7474 - Springer, 2012.
- [14] D. Kondermann, S. Abraham, G. Brostow, W. Foerstner, S. Gehrig, and et al., *Outdoor and Large-Scale Real-World Scene Analysis*, ch. On Performance Analysis of Optical Flow Algorithms, pp. 27–51. LNCS - Springer Verlag, 2012.
- [15] R. Ranftl, S. Gehrig, T. Pock, and H. Bischof, “Pushing the limits of stereo using variational stereo estimation,” in *Intelligent Vehicles Symposium 2012*, June 2012.
- [16] S. Gehrig, H. Badino, and U. Franke, “Improving sub-pixel accuracy for long range stereo,” *Computer Vision and Image Understanding (CVIU)*, vol. 116, pp. 16–24, January 2012.

- [17] S. Gehrig and T. Scharwaechter, “A real-time multi-cue framework for determining optical flow confidence,” in *CVVT:E2M 2011 @ ICCV*, November 2011.
- [18] S. Gehrig and C. Rabe, “Real-time semi-global matching on the CPU,” in *ECVW 2010 @ CVPR*, June 2010.
- [19] S. Gehrig, F. Eberli, and T. Meyer, “A real-time low-power stereo vision engine using semi-global matching,” in *ICVS 2009*, pp. 134–143, October 2009.
- [20] P. Steingrube, S. Gehrig, and U. Franke, “Performance evaluation of stereo algorithms for automotive applications,” in *ICVS 2009*, pp. 285–294, October 2009.
- [21] H. Hirschmueller and S. Gehrig, “Stereo matching in the presence of sub-pixel calibration errors,” in *CVPR, Miami, FL*, June 2009.
- [22] S. Gehrig, C. Rabe, and L. Krueger, “6d vision goes fisheye for intersection assistance,” in *Canadian Robot Vision, Windsor*, 2008.
- [23] T. Vaudrey, H. Badino, and S. Gehrig, “Integrating disparity images by incorporating disparity rate,” in *Robot Vision 2008*, February 2008.
- [24] J. Gall, B. Rosenhahn, S. Gehrig, and H. Seidel, “Model-based motion capture for crash test video analysis,” in *DAGM 2008, Munich, Germany*, June 2008.
- [25] U. Franke, S. Gehrig, H. Badino, and C. Rabe, “Towards optimal stereo analysis of traffic scenes,” in *Robot Vision 2008*, February 2008.
- [26] U. Franke, C. Rabe, S. Gehrig, and H. Badino, “Dynamic stereo vision for intersection assistance,” in *Fisita*, 2008.
- [27] S. Gehrig and U. Franke, “Improving sub-pixel accuracy for long range stereo,” in *ICCV-Workshop VRML, Rio de Janeiro, Brasil*, October 2007.
- [28] S. K. Gehrig, H. Badino, and J. Gall, *Human Motion Capture*, ch. Accurate and Model-Free Pose Estimation of Crash Test Dummies, pp. 443–466. Springer Verlag, 2007.
- [29] C. Rabe, U. Franke, and S. K. Gehrig, “Fast detection of moving objects in complex scenarios,” in *Intelligent Vehicles 2007, Istanbul, Turkey*, June 2007.
- [30] U. Franke, C. Rabe, and S. Gehrig, “Kollisionsvermeidung durch raum-zeitliche Bildanalyse,” *it - Information Technology*, vol. 49, pp. 25–32, February 2007.
- [31] A. Kramer, S. Gehrig, N. Schaub, and U. Merz, “Komplementaere, photogrammetrische 3D-Messverfahren und deren Potential fuer den Abgleich von Crashesimulationsdaten,” in *13. VDI-Fachtagung, Wuerzburg, Germany*, June 2007.
- [32] S. Gehrig and F. Stein, “Collision avoidance for vehicle following,” *IEEE ITS*, vol. 8, pp. 233–244, April 2007.
- [33] S. K. Gehrig, H. Badino, and P. Paysan, “Accurate and model-free pose estimation of small objects for crash video analysis,” in *British Machine Vision Conference BMVC, Edinburgh*, September 2006.
- [34] H. Badino, U. Franke, C. Rabe, and S. Gehrig, “Stereo-vision based detection of moving objects under strong camera motion,” in *International Conference on Computer Vision Theory and Applications*, (Setubal, Portugal), pp. 253–260, February 2006.

- [35] S. K. Gehrig, A. Kramer, and U. Merz, "Stereoskopische Filmanalyse - Update und Genauigkeitsanalysen," in *Arbeitskreis "Bildverarbeitung im Sicherheitsversuch"*, Haeckermuehle, Germany, November 2006.
- [36] U. Franke, C. Rabe, H. Badino, and S. Gehrig, "6D Vision: Fusion of motion and stereo for robust environment perception," in *Pattern Recognition, DAGM Symposium 2005, Vienna*, pp. 216–223, 2005.
- [37] F. Woelk, S. Gehrig, and R. Koch, "A monocular collision warning system," in *Canadian Robot Vision, Toronto*, 2005.
- [38] S. K. Gehrig, "Large-field-of-view stereo for automotive applications," in *OmniVis 2005, Beijing*, October 2005.
- [39] S. K. Gehrig, U. Franke, and U. Merz, "Modern computer vision techniques push the envelope of camera-based crash analysis," in *CrashTech 2005, Nuremberg*, May 2005.
- [40] S. K. Gehrig, "Stereoskopische Filmanalyse (ohne Messmarken)," in *Arbeitskreis "Bildverarbeitung im Sicherheitsversuch"*, Weissach, Germany, September 2005.
- [41] U. Franke, S. K. Gehrig, and F. Lindner, "Camera-based intersection assistance," in *Aachen Colloquium Automobile and Engine Technology*, pp. 803–820, October 2004.
- [42] S. K. Gehrig, J. Klappstein, and U. Franke, "Active stereo for intersection assistance," in *Vision Modeling and Visualization Conference, Stanford, USA*, pp. 29–35, November 2004.
- [43] F. Woelk, S. K. Gehrig, and R. Koch, "A monocular image based intersection assistant," in *Proceedings of the Intelligent Vehicles 04 Symposium*, pp. 286–291, 2004.
- [44] S. K. Gehrig, S. Wagner, and U. Franke, "System architecture for an intersection assistant fusing image, map, and gps information," in *Proceedings of the Intelligent Vehicles 2003 Symposium, Columbus, Ohio, USA*, pp. 144–149, June 2003.
- [45] S. K. Gehrig and U. Franke, "Intersection assistant fusing image, map, and gps information," in *2. Workshop Fahrerassistenzsysteme 2003, Leinsweiler, Pfalz, Germany*, pp. 5–8, September 2003.
- [46] S. K. Gehrig, A. Gern, S. Heinrich, and B. Woltermann, "Lane recognition on poorly structured roads - the bot dot problem in california," in *5th Intelligent Transportation Systems Conference, Singapore*, September 2002.
- [47] S. K. Gehrig and F. J. Stein, "Elastic bands to enhance vehicle following," in *4th Intelligent Transportation Systems Conference, Oakland, CA, USA*, pp. 597–602, August 2001.
- [48] A. Wuerz, S. K. Gehrig, and F. J. Stein, "Enhanced stereo vision using free-form surface mirrors," in *Robot Vision (G. S. R. Klette, S. Peleg, ed.)*, Lecture Notes in Computer Science, pp. 91–98, IAPR, Springer, 2001.
- [49] S. K. Gehrig, *Design, Simulation and Implementation of a Vision-Based Vehicle-Following System*. PhD thesis, Physics Department, University of Tübingen, 2000.
- [50] S. K. Gehrig and F. J. Stein, "Collision avoidance using elastic bands for an autonomous car," in *6th International Conference on Intelligent Autonomous Systems, Venice, Italy*, pp. 1065–1072, 2000.

- [51] S. K. Gehrig and F. J. Stein, “Cartography and dead reckoning using stereo vision for an autonomous car,” in *International Conference on Image Processing, Kobe, Japan*, 1999.
- [52] S. K. Gehrig and F. J. Stein, “Cartography and dead reckoning using stereo vision for an autonomous vehicle,” in *ISCA International Conference on Intelligent Systems, Denver, USA*, pp. 209–212, 1999.
- [53] K. Dao, S. F. Dow, S. K. Gehrig, R. C. Jared, A. Karcher, J. F. Kral, C. M. LeClerc, M. E. Levi, H. von der Lippe, T. H. Liu, K. M. Marks, A. B. Meyer, R. Minor, and A. H. Montgomery, “A binary link tracker for the babar level 1 trigger system,” *IEEE Transactions on Nuclear Science*, vol. 46, no. 4, pp. 928–932, 1999.
- [54] S. K. Gehrig and F. J. Stein, “Dead reckoning and cartography using stereo vision for an autonomous car,” in *International Conference on Intelligent Robots and Systems, Kyongju, Korea*, pp. 1507–1512, 1999.
- [55] A. Berenyi, H. K. Chen, K. Dao, S. K. Gehrig, M. S. Gill, C. Grace, R. C. Jared, J. K. Johnson, A. Karcher, D. Kasen, F. A. Kirsten, J. F. Kral, C. M. LeClerc, M. E. Levi, H. von der Lippe, T. H. Liu, K. M. Marks, A. B. Meyer, R. Minor, A. H. Montgomery, and A. Romosan, “Design and implementation of the level 1 charged particle trigger of the babar detector,” *IEEE Transactions on Nuclear Science*, vol. 46, no. 6, pp. 2006–2010, 1999.
- [56] S. K. Gehrig and F. J. Stein, “An algorithm for advanced lateral control of an autonomous vehicle applied to car following,” in *Proceedings of the Conference on Advances in Vehicle Control and Safety*, pp. 188–193, 1998.
- [57] S. K. Gehrig and F. J. Stein, “A trajectory-based approach for the lateral control of car following systems,” in *Proceedings of the IEEE Conference on Systems Man and Cybernetics 98*, vol. 4, pp. 3596–3601, 1998.
- [58] S. K. Gehrig and F. J. Stein, “A trajectory-based approach for the lateral control of vehicle following systems,” in *Proceedings of the Intelligent Vehicles 98 Symposium*, vol. 1, pp. 156–161, 1998.
- [59] K. M. Marks, S. K. Gehrig, C. Grace, R. C. Jared, A. Karcher, D. Kasen, J. F. Kral, C. M. LeClerc, M. E. Levi, H. von der Lippe, T. H. Liu, K. M. Marks, A. B. Meyer, R. Minor, and A. H. Montgomery, “Continuously live image processor for drift chamber track segment triggering,” *IEEE Transactions on Nuclear Science*, vol. 46, no. 3, pp. 348–353, 1999.
- [60] J. Kral, S. F. Dao, K. Dow, S. K. Gehrig, C. Grace, R. C. Jared, A. Karcher, D. Kasen, F. A. Kirsten, C. M. LeClerc, M. E. Levi, H. von der Lippe, T. H. Liu, K. M. Marks, A. B. Meyer, R. Minor, A. H. Montgomery, and A. Romosan, “Babar level 1 charged particle trigger design,” in *Proceedings of the CHEP’98 (Computing in HighEnergy Physics), Chicago*, 1998.
- [61] A. Karcher, S. K. Gehrig, R. C. Jared, D. Kasen, J. F. Kral, C. M. LeClerc, M. E. Levi, H. von der Lippe, T. H. Liu, K. M. Marks, A. B. Meyer, R. Minor, and A. H. Montgomery, “A real-time transverse momentum discriminator for the babar level 1 trigger system,” in *1998 IEEE Nuclear Science Symposium and Medical Imaging Conference, Toronto*, 1998.
- [62] S. Gehrig, “Design and simulated performance of the level 1 trigger system for the babar cp violation experiment,” Master’s thesis, Lawrence Berkeley National Laboratory (CA) and University of Tübingen, 1997.

- [63] S. Gehrig, "Interaction vertices of hadrons produced by photoproduction of lost beam particle background causing trigger rates," Tech. Rep. BaBar Note 350, SLAC - Stanford Linear Accelerator, February 1997.
- [64] S. Gehrig and J. Kral, "Impact of cell inefficiencies on drift chamber trigger track finding and pt discrimination," Tech. Rep. BaBar Note 314, SLAC - Stanford Linear Accelerator, July 1996.
- [65] S. Gehrig, R. Jared, J. Kral, M. Levi, and A. Montgomery, "Measuring event time to an rms of 10-ns with drift chamber trigger segments," Tech. Rep. BaBar Note 319, SLAC - Stanford Linear Accelerator, August 1996.
- [66] S. Gehrig, J. Kral, and A. Montgomery, "Level 1 global trigger efficiency, rate and event time jitter simulation results," Tech. Rep. BaBar Note 338, SLAC - Stanford Linear Accelerator, October 1996.
- [67] S. Gehrig, "Erstellung eines heuristischen Verfahrens zur Trendberechnung und Visualisierung am Beispiel "Niedrigwassermenge im Bereich Kernkraftwerk Neckarwestheim", " Master's thesis, Fakultät für Technische Informatik, Berufsakademie Stuttgart, 1991.