

Dieter Koller

266 Pamela Dr. # 12
Mountain View, CA 94040

Phone: (650) 938-6726

Office: (650) 943-1846

Email: dkoller@acm.org

Objective:

A challenging senior research and development position in computer vision or computer graphics. Special interests in three-dimensional modeling from images, model matching, motion analysis and tracking with application to Virtual/Augmented Reality, user interaction and visualization.

Education:

1992: Ph.D. in Computer Science, University of Karlsruhe, Germany.

1988: Masters in Physics (with honors), University of Karlsruhe, Germany.

Professional Skills:

- Strong experience (> 8 years) in architecturing large scale object-oriented software applications using C++. Very experienced in all phases of the software engineering process.
- Strong mathematical background.
- Platforms: IBM PC, Sun Sparc, Silicon Graphics.
- Operating systems: Windows 95/NT, Unix/Linux, SGI IRIX.
- Software: Visual C++ w/ MFC, OpenGL, C, C++, X-Windows, OSF/Motif, Tcl/Tk, HTML.

Experience:

1997–present: **Software engineer and team leader**

Autodesk, Inc., Mountain View, CA

I am heading the platform integration group for architecturing and implementing an application for 3D modeling from images in Visual C++ on Windows 95. I also headed a team for the design and implementation of a module for parametric 3D model matching and parameter estimation.

1996–1997: **Post doctoral fellow and student advisor** *California Institute of Technology, Pasadena, CA*

Designed and implemented a general computer vision software tool in C++ and Tcl/Tk on Linux, which was later specifically tailored for image sequence analysis and human motion detection in video sequences.

1994–1996: **Research scientist**

European Computer Research Centre, Munich, Germany

Conducted research in vision-based camera and object tracking for Augmented Reality applications and implemented a real-time camera tracking system in C++ on a Silicon Graphics system using IRIS Performer and OpenInventor.

1992–1994: **Post doctoral researcher**

University of California at Berkeley, CA

Conducted research in tracking cars in video sequences, machine vision based vehicle control, and binocular stereo vision. Designed and implemented a real-time system for detecting and tracking cars in video sequences, as well as a system for machine vision based vehicle control. Coauthored several research project proposals.

1988–1992: **Researcher and teaching assistant**

CS Department, University of Karlsruhe, Germany

Conducted research in motion detection and tracking of moving objects in image sequences and designed and implemented a large experimental system for image sequence analysis. Also worked as advisor in diploma theses and student projects.

References:

- Upon request.

International Activities:

• Presentations at Conferences and Workshops:

- DAGM-90, Oberkochen-Aalen, Germany, 1990 [2]
- CVPR-91, Lahaina, Maui, Hawaii, June, 1991 [3]
- ECCV-92, S. Margherita, Ligure, Italy, May, 1992 [4]
- PATH-Conference, Berkeley, CA, November, 1993
- ICAICVNN-93, Tel-Aviv, Israel, December, 1993 [8]
- ECCV-94, Stockholm, Sweden, May, 1994 [14]
- IV-94 Symposium, Paris, France, October 1994 [15, 11]
- VRST-97, Lausanne, Switzerland, September, 1997 [18]
- CAIP-97, Kiel, Germany, September, 1997 [19]

• Other attended Conferences and Workshops:

- DAGM-89, Hamburg, Germany, 1989
- BRA Insight workshop, Nice, France, June 1991
- PATH-Conference, Berkeley, CA, USA, November, 1992
- WACV-92, Palm Springs, CA, USA, December 1992
- ICCV-93, Berlin, Germany, May, 1993
- CVPR-93, New York City, NY, USA, June, 1993
- ICCV-95, MIT, Cambridge, MA, USA, June, 1995
- KI/DAGM-95, Bielefeld, Germany, September 1995
- Face & Gesture, Killington, Vermont, October, 1996

• International Seminar Talks at:

- Int'l Computer Science Institute, Berkeley, California, Nov, 1992
- Hamburg University, Germany, May, 1993
- GE Corporate Research and Development, New York, June 1993
- Brown University, Providence, Rhode Island, June 1993
- Yale University, New Haven, Connecticut, June 1993
- University of Maryland at College Park, Maryland, June 1993
- Carnegie-Mellon University, Pittsburgh, Pennsylvania, June 1993
- Xerox PARC, Palo Alto, California, July 1993
- University of Southern California, Los Angeles, July 1993
- California Institute of Technology, Pasadena, July 1993
- Stanford University, California, Nov 1993
- University of Geneva, Switzerland, Feb. 1995
- NASA-JPL, Pasadena, California, March 1996
- ERC, CalTech, Pasadena, California, November 1996

• Served as a reviewer for conference or journal:

- 2. European Conference on Computer Vision (ECCV-92), 1992
- 5. Int'l Conference on Computer Vision (ICCV-93), 1993
- Int'l Journal of Computer Vision (IJCV)
- IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)
- Image and Vision Computing (IVC)
- IEE Proceedings - Vision, Image and Signal Processing

• Awards:

- Honorable mention prize for best industry-related paper at ICPR-94 [12]

• Member of IEEE and ACM

Publications

- [1] D. Koller, M. Malvetti, and H. Pilkuhn. Positronium and Muonium in strong magnetic Fields. *Physics Letters A*, 132(5):259–261, 1988.
- [2] D. Koller and H.-H. Nagel. Ein robustes Verfahren zur Detektion und Verfolgung bewegter Objekte in Bildfolgen. In R. E. Grosskopf (ed.), *DAGM-Symposium Mustererkennung 1990*, Oberkochen-Aalen, Informatik-Fachberichte **254**, pages 625–633. Springer-Verlag, Berlin, Heidelberg, New York, London, Paris, Tokyo, 1990.
- [3] D. Koller, N. Heinze, and H.-H. Nagel. Algorithmic Characterization of Vehicle Trajectories from Image Sequences by Motion Verbs. In *Conference on Computer Vision and Pattern Recognition*, pages 90–95, Lahaina, Maui, Hawaii, June 3-6, 1991.
- [4] D. Koller, K. Daniilidis, T. Thórhallson, and H.-H. Nagel. Model-Based Object Tracking in Traffic Scenes. In *Proc. Second European Conference on Computer Vision*, pages 437–452, S. Margherita, Liguria, Italy, May 18-23, 1992, G. Sandini (ed.), Lecture Notes in Computer Science **588**, Springer-Verlag, Berlin, Heidelberg, New York, 1992.
- [5] D. Koller. *Detektion, Verfolgung und Klassifikation bewegter Objekte in monokularen Bildfolgen am Beispiel von Straßenverkehrsszenen* (translated title: Detecting, Tracking and Classifying Moving Objects in Monocular Image Sequences of Road Traffic Scenes). *Dissertationen zur Künstlichen Intelligenz DISKI 13*. infix-Verlag, Sankt Augustin, 1992. (in german).
- [6] D. Koller, K. Daniilidis, and H.-H. Nagel. Model-Based Object Tracking in Monocular Image Sequences of Road Traffic Scenes. *International Journal of Computer Vision*, 10(3):257–281, 1993.
- [7] D. Koller, J. Weber, and J. Malik. Robust Multiple Car Tracking with Occlusion Reasoning. technical report ucb/csd-93-780, University of California at Berkeley, October 1993.
- [8] Dieter Koller. Moving Object Recognition and Classification based on Recursive Shape Parameter Estimation. In *Proc. of the 12th Israeli Conf. on Artificial Intelligence and Computer Vision and Neural Networks*, pages 359–368, Tel-Aviv, Israel, December 27-28, 1993.
- [9] T. Huang, D. Koller, J. Malik, G. Ogasawara, B. Rao, S. Russell, and J. Weber. Automatic Symbolic Traffic Scene Analysis Using Belief Networks. In *Proc. National Conf. on Artificial Intelligence*, Seattle, WA, July 31–Aug. 4, 1994.
- [10] D. Koller, Q.-T. Luong, and J. Malik. Binocular Stereopsis and Lane Marker Flow for Vehicle Navigation: Lateral and Longitudinal Control. technical report ucb/csd-94-804, University of California at Berkeley, March 1994.
- [11] D. Koller, Q.-T. Luong, and J. Malik. Using Binocular Stereopsis for Lane Following and Lane Changing Maneuvers. In *Proc. of the Intelligent Vehicles '94 Symposium*, pages 237–242, Paris, France, October 24-26, 1994, 1994.
- [12] D. Koller, J. Weber, T. Huang, J. Malik, G. Ogasawara, B. Rao, and S. Russell. Towards Robust Automatic Traffic Scene Analysis in Real-Time. In *Proc. Int. Conf. on Pattern Recognition*, pages 126–131, Jerusalem, Israel, October 9-13, 1994.
- [13] D. Koller, J. Weber, and J. Malik. Robust Multiple Car Tracking with Occlusion Reasoning. California path working paper ucb-its-pwp-94-01 (issn 1055-1417), PATH, January 1994.

- [14] D. Koller, J. Weber, and J. Malik. Robust Multiple Car Tracking with Occlusion Reasoning. In *Proc. Third European Conference on Computer Vision*, pages 189–196, Stockholm, Sweden, May 2-6, 1994, J.-O. Eklundh (ed.), Lecture Notes in Computer Science **800**, Springer-Verlag, Berlin, Heidelberg, New York, 1994.
- [15] D. Koller, J. Weber, and J. Malik. Towards Realtime Visual Based Tracking in Cluttered Traffic Scenes. In *Proc. of the Intelligent Vehicles '94 Symposium*, pages 201–206, Paris, France, October 24-26, 1994, 1994.
- [16] Q.-T. Luong, J. Malik, J. Weber and D. Koller. Smart Cars and Smart Roads. In *Proc. British Machine Vision Conference*, pages 367–381, Birmingham, UK, Sept. 11-14, 1995.
- [17] Q.-T. Luong, J. Weber, D. Koller, and J. Malik. An Integrated Stereo-Based Approach to Automatic Vehicle Guidance. In *International Conf. on Computer Vision*, pages 52–57, Boston, MA, June 20–23, 1995.
- [18] D. Koller, G. Klinker, E. Rose, D. Breen, R. Whitaker, and M. Tuceryan. Real-time Vision-Based Camera Tracking for Augmented Reality Applications. In *Proceedings of the ACM Symposium on Virtual Reality Software and Technology (VRST-97)*, Lausanne, Switzerland, September 15-17, 1997, pp. 87-94.
- [19] D. Koller, G. Klinker, E. Rose, D. Breen, R. Whitaker, and M. Tuceryan. Automated Camera Calibration and 3D Egomotion Estimation for Augmented Reality Applications. In *Proceedings of the 7th International Conference on Computer Analysis of Images and Patterns (CAIP-97)*, Kiel, Germany, September 10-12, 1997, pp. 199-206.
- [20] G. Klinker, K. Ahlers, D. Breen, P.-Y. Chevalier, C. Crampton, D. Greer, D. Koller, A. Kraemer, E. Rose, M. Tuceryan, and R. Whitaker. Confluence of Computer Vision and Interactive Graphics for Augmented Reality. *Presence: Teleoperators and Virtual Environments (Special issue on Augmented Reality)*, pp. 433-451, Vol. 6(4), MIT Press Journal, Aug. 1997.