

PASCAL FUA
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Education

Graduate School:

PhD in Computer Science from the University of Orsay, advisor O.D. Faugeras (1989).

Undergraduate:

Engineering Diploma from Ecole Polytechnique (Palaiseau), ranked 21st out of a class of 310 (1981–1984).

“Classes préparatoires” at Lycée Louis-le-Grand, Paris (1979 – 1981).

“Baccalauréat mention Très Bien”, Ecole Alsacienne, Paris (1979).

Professional History

EPFL: Professor, Chair for Computer Vision, October 2007 to present.

EPFL: Associate Professor, Chair for Computer Vision, October 2002 to September 2007.

EPFL: Senior Lecturer in the Virtual Reality Laboratory, October 1996 to September 2002.

SRI International: Senior Computer Scientist at the Artificial Intelligence Center, April 1992 to September 1996.

ETHZ: Guest Professor, Department of Electrical Engineering, Winter 1995 and 1996.

ETHZ: Invited Visiting Scientist, Communication Technology Laboratory and Institute for Geodesy and Photogrammetry, Winter 1993 and 1994.

SRI International: Computer Scientist at the Artificial Intelligence Center, March 1992 to March 1995.

INRIA: Ingénieur expert, January 1990 to February 1992.

SRI International: Visiting Scientist at the Artificial Intelligence Center, September 1985 to December 1989.

Current Research Interests

Shape modeling and motion recovery.

Object detection and tracking.

Reconstruction of neural structures.

Augmented Reality.

RESEARCH GRANTS

European Union¹

Principal investigator for *myCopter Enabling Technologies for Personal Aerial Vehicles*, (2011–2014, EUR 401'000),

Principal investigator for *Modeling Brain Circuitry using Scales Ranging from Micrometer to Nanometer*, (2009–2014, EUR 2'500'000, Senior ERC).

Principal investigator for *Anguilliform Robot with an Electric Sense*, (2009–2012, EUR 267'000).

Principal investigator for *Platform for Search of Audiovisual Resources across Online Spaces*, (2007–2010, EUR 334'000).

Principal investigator for *Helicopter and Aeronef Navigation Airborne System Experimentations*, (2006–2009, EUR 404'000).

Principal investigator for *Dynamics Visual Networks*, (2006–2008, EUR 210'00).

Principal investigator for *VISIONTRAIN Marie Curie Research Training Network*. (2005–2009, EUR 309'000).

Principal investigator for *Video Browsing, Exploration and Structuring* (2000–2004, EUR 315'000).

Co-principal investigator for *Modeling Equipment for Live Interactive Electronic Streaming* (2001–2004, EUR 502'000).

Co-principal investigator for *Service Training through Augmented Reality* (2001–2004, EUR 412'000).

Co-principal investigator for *Modeling of Expressions and Shape of Human Heads* (2000–2002, EUR 345'000).

Co-investigator for *Crowds Simulation System for Emergency Situations* (2000–2002, EUR 480'000).

Co-investigator for *Motion Capture* (1997–1999, EUR 480'000).

Swiss National Science Foundation²

Principal investigator for *Automating Delineation of Dendritic Networks in Noisy Image Stacks*, (2009–2011, Sfr. 98'000).

Principal investigator for *Modeling Deformable 3-D Surfaces from Video*, (2007–2011, Sfr. 193'000).

Principal investigator for *Motion Models for Monocular People Tracking* (2004–2012, Sfr. 286'000).

Principal investigator for *Realistic Body Modeling from Video Sequences* (1998–2007, Sfr. 826'000).

Co-principal investigator for *Neural Circuit Reconstruction* (2010–2013, Sfr. 1'500'000).

¹European projects are usually awarded to consortia formed by a number of university laboratories and industrial partners. The amounts shown here are those received solely by our laboratory.

²Swiss projects are awarded in Swiss Francs (Sfr). Over the last few years, the average conversion rate has been approximately Sfr 1.55 per EURO and Sfr 1.25 per USD.

Co-principal investigator for *Understanding Brain Morphogenesis: Computer Vision Morphological Feature Extraction and a Machine Learning Approach to Study the Molecular and Environmental Factors Regulating Neuronal Development* (2009–2012, Sfr. 1'198'705).

Co-principal investigator for *Populating Mixed Reality Cities*, (2009–2010, Sfr. 881'461).

Co-principal investigator for *View Sets for 3-D Object Detection* (2005–2011, Sfr. 273'000).

Co-principal investigator for *Analysis and Image Synthesis of Daily Physical Activity using Kinematic Sensors: A new Method for Outcome Evaluation* (2001-2006, Sfr. 434'000).

Co-principal investigator for *Virtual Animation of Real Scenes* (2000–2008, Sfr. 241'000).

Advanced Research Project Agency

Co-principal investigator for *Rapid Construction of Virtual Worlds* (1995–1996, \$600'000).

Co-principal investigator for *RADIUS: Model-Based Optimization* (1992–1995, \$750'000).

US National Science Foundation

International collaborator in *Personalized Spatial Audio through Computer Vision and Scientific Computing*, an interdisciplinary project headed by the University of Maryland Institute for Advanced Computer Studies (2000–2003).

Industry

Principal investigator for *Image-Based Object Tracking and Identification in Team Sports Environments* (2011–2012, Sfr. 374'000), CTI project in collaboration with Swiss Timing, SA.

Principal investigator for *Advanced Computer Vision and Visual Languages for Broader Markets in Augmented Reality* (2010–2011, Sfr. 465'000), CTI project in collaboration with Space 3D SA.

Principal investigator for *Fast and Reliable 3D Object Detection in Infra Red Imagery*, (2008–2011, EUR 210'000). Funded by Thales Optronique S.A.

Principal investigator for *Deformations from Video in an Aeronautical Context*, (2009–2010, EUR 60'000). Funded by Dassault Aviation S.A.

Principal investigator for *Animating Faces from Video*, (2008–2100, EUR 104'000). Funded by Deutsche Telekom A.G.

Principal investigator for *Video-Based Trajectory Reconstruction*, (2006–2007, EUR 20'000). Funded by Dassault Aviation S.A.

Principal investigator for *Incident Detection in a Multi-Camera Environment for Visual Surveillance Applications* (2004–2005, Sfr. 270'000), CTI project in collaboration with Visiowave Inc.

Principal investigator for *Developing an Automated Golf Coach* (2001–2003, Sfr. 241'500), CTI project in collaboration with Dartfish Inc.

Seed contract with l'Oréal in collaboration with INRIA (1999–2000, EUR 23'000).

AWARDS

IEEE Fellow since January 2012.

DIADEM challenge award, Janelia Farm, Virginia USA, September 2010.

Best European Design Diploma for a Masters student, TALENT exhibition, Eindhoven, Netherlands, October 2008.

Best Paper Prize, Conference on Computer Vision and Pattern Recognition, San Diego, CA, June 2005.

Best Demonstration Prize, British Machine Vision Conference, Norwich, UK, September 2003.

TEACHING EXPERIENCE

EPFL Graduate Classes

Foundations of Image Science, 3 hours a week, Winter Semester, 2004/2005 to present.

Introduction to Computer Vision, 3 hours a week, Spring Semester, 1996/1997 to present.

Computer Vision graduate seminar, 2 hours a week, Winter Semester, 1996/1997 to 2002/2003.

Modules in the "Virtual Reality" and "Multimodal Interfaces" graduate courses, 1996/1997 to 2002/2003.

EPFL Undergraduate Classes

Programming Theory and Practice, 3 hours a week, Spring Semester, 2007/2008 to 2009/2010.

Functional and Logic Programming, 3 hours a week, Spring Semester, 1997/1998 to 2000/2001.

Programming Languages I and II, 3 hours a week, Spring and Winter Semesters, 1996/1997 and 1997/1998.

ADVISING GRADUATE STUDENTS

Former PhD Students

G. Gonzalez, *Automated Detection and Delineation of Tree Structures in Noisy Micrographs*, graduated in April 2011. Post-doctoral fellow, MIT, Boston.

M. Calonder, *Robust, High-Speed Interest Point Matching for Real-Time Applications*, graduated in October 2010. Wegelin & Co, Zürich.

E. Tola, *DAISY: A Fast Descriptor for Dense Wide Baseline Stereo and Multiview Reconstruction*, graduated in October 2010.

M. Ozuysal, *Learning Pose Invariant and Covariant Classifiers from Image Sequences*, graduated in July 2010.

J. Berclaz, *Pedestrian Localization, Tracking and Behavior Analysis from Multiple Cameras*, graduated in June 2010, Post-doctoral fellow, EPFL, Lausanne.

- A. Fossati, *Bridging the Gap between Detection and Tracking for 3D Human Motion Recovery*, graduated in June 2010. Post-doctoral fellow, ETHZ, Zürich.
- P. Lagger, *Specularities as an Information Source in the Presence of Texture*, graduated in May 2009, Lausanne. Space 3D, Lausanne, Switzerland.
- M. Salzmann, *Learning and Recovering 3D Surface Deformations*, graduated in December 2008. Research Assistant Professor, Toyota Technological Institute at Chicago, USA.
- J. Pilet, *Augmented Reality for Non-Rigid Surfaces*, graduated in September 2008, EPFL, Lausanne. Google, Zürich, Switzerland.
- M. Dimitrijevic, *Spatio-temporal human pose detection*, graduated in September 2007. Philip Morris, Lausanne, Switzerland.
- R. Urtasun, *Motion Models for Robust 3D Human Body Tracking*, graduated in May 2006. Assistant Professor, Toyota Technological Institute at Chicago, USA.
- A. Shahrokni, *Probabilistic Modeling of Texture Transition for Fast Tracking and Delineation*, graduated in December 2005. 2d3 Ltd, Oxford, UK.
- S. Ilic, *Implicit Meshes: Unifying Implicit and Explicit Surface Representations for 3D Reconstruction and Tracking*, graduated in June 2005. Senior research scientist, Technical University of Munich, Munich, Germany.
- L. Vacchetti, *Multi Modal Tracking in Complex Environments for Augmented Reality Applications*, graduated in November 2004. QualiVision, Alba, Italy.
- L. Herda, *Using Bio-mechanical Constraints for Improved Fitting of Body Models to Dynamic 3-D Data*, graduated in December 2003. Skyguide, Geneva, Switzerland.
- A. Aubel, *Simulating Versatile Virtual Humans*, Co-Supervision with D. Thalmann, graduated in June 2002. Dreamworks, Glendale, CA.
- R. Plänkers, *Human Body Modeling from Video Sequences*, graduated in November 2001. UBS, Zürich, Switzerland.
- S. Balcisoy, *Analysis and Development of Interaction Techniques between Real and Synthetic Worlds*, Co-Supervision with D. Thalmann (EPFL), graduated in June 2001. Assistant Professor, Sabanci University, Istanbul, Turkey.
- R. Lengagne, *Integrating Differential Constraints in a 3-D Reconstruction Process*, Co-Supervision with O. Monga (INRIA), graduated in December 2000. UTC Fire and Security, Lausanne, Switzerland.

Current PhD Candidates

- K. Ali, *Training Embedded Vision Systems*, 2008 to present.
- H. BenShitrit, *People Detection in Crowded Scenes*, 2009 to present.
- C. Becker, *Transfer Learning for Microscopy Applications*, 2011 to present.
- P. Glowacki, *Modeling Growing Dendritic Trees*, 2011 to present.

- O. Kueng, *Modeling Rivers from Stereo Imagery*, 2009 to present.
- A. Lucchi, *Segmentation of Electron Microscopy Images*, 2008 to present.
- M. Raca, *People Tracking in Crowded Scenes*, 2010 to present.
- X. Sun, *Matching NIR Images*, 2010 to present.
- E. Turetken, *Automated Reconstruction of Dendritic and Axonal Trees*, 2008 to present.
- A. Varol, *3D Surface Reconstruction from Monocular Videos*, 2007 to present.
- X. Wang, *Behavioral Models from Video Sequences*, 2010 to present.

Diploma and Masters Level Student Projects

- R. Dumusc, *Interactive Projection Screen*, 2011.
- E. Molla, *Virtual Gaze Correction - A Feasibility Study*, 2011.
- D. Guenaydin, *Slow Motion Compensation in 3D Microscopy Images*, 2011.
- B. Brot, *Edge-Based 3D Reconstruction*, 2010.
- E. Molla, *Augmented Reality Monopoly*, 2010.
- J. Ostlund, *Extending blind pnp for deformable surface recovery*, 2010.
- J. Perez, *Multivariate Gaussian Similarity Model for Outlier Rejection*, 2010.
- O. Kueng, *Development of Geometrical Image Correction for Projectors*, 2009.
- C. Scherrer, *The Haunted Book*, 2008.
- P. Schönmann, *Real-Time Vehicle Detection and Tracking*, 2008.
- L. Benda, *Mesh Alignment*, 2008.
- A. Buttu, *Road Reconstruction using Structured Light and Stereo Vision*, 2008.
- L. Chatelain, *Ferns and Incremental Mixtures of Gaussians for Object Recognition*, 2007.
- M. Desboeufs, *Depth of Field: Camera Calibration and Augmentation*, 2007.
- J. Crespo, *Photometric Image-Based Rendering for Relighting a Static Scene*, 2006.
- H Randriamangason, *PHP/MySQL/LaTeX Bibliography Project*, 2006.
- S. Pralong, *3D Human Body Editor in Maya*, 2006.
- S. Décoppet, *Computer Vision Goes Sailing*, 2005.

- M. Dalla Valle, *Automatic Hand Detection in Video Sequences for Musical Applications*, 2005.
- A. Mazzoni, *Robust Human Body Detection in Video Sequences*, 2004.
- R. Etemad-Sajadi, *Temporal Model of Hand Motion*, 2004.
- F. Aeschlimann, *Converting and Synthesizing Sequences of Articulated Body Motion using Different Standards*, 2003.
- J. Barbier, *Texture boundary detection for real time tracking*, 2003.
- M. Bizini, *3-D Human Body Tracking using Motion Prediction*, 2003.
- M. Salzmann, *3-D Morphing of Triangulated Meshes*, 2003.
- S. Stankovic, *Real-Time 3-D Face Tracking for Robotics Applications*, 2003.
- A. Tardy, *Primitive-Based Morphing of Implicit Surfaces*, 2002.
- M. Dimitrijevic, *Face Detection for Robotics Applications*, 2002.
- P. Lagger, *Radiometric Recovery in the Presence of Specularities and Shadows*, 2002.
- G. Blasko, *Automated Initialization of a Polyhedral Tracker*, 2001.
- R. Urtasun, *Modeling Joint Limits*, 2001.
- D. Garces, *Body Silhouette Extraction from Video Sequences*, 1999.
- G. Kouadri, *Region-Based Segmentation*, 1999.
- C. Briner, *Automated Detection of a 3-D Checker Board*, 2000.
- S. Perroud, *Instant Avatars using a Laser Scanner*, 2000.
- S. Ilic, *Well Textured Avatars*, 2000.
- R. Plänkers, *3-D Human Body Modeling from Video Sequences*, 1998.
- F. Ebrahimi, *Correlation-Based Hand-tracking using Kalman Filtering and Multigrid Blocks*, 1998.
- S. Stambach, *Detecting interest points in 2-D images*, 1998.

ADMINISTRATIVE DUTIES

- Director of the I&C ISIM Institute, 2007 to present.
- Member of the I&C School Selection Committee, 2003 to 2008.
- Member of the I&C Doctoral School Committee, 2003 to 2006 and 2010 to 2011.
- Guest member of the Life Science School Selection Committee, 2004 to 2005.

Chair of the Computer Science Department Equipment Oversight Committee, 1999 to 2001. Among other things, this committee is in charge of supervising the purchasing of file servers, workstations and peripherals for the department.

Organization of the I&C School seminar series, 1998 to 2003.

OTHER ACTIVITIES

Invited Talks since 2004

Microsoft Research India Computer Vision and Graphics Shindig, Bangalore, India, 2010.

Keynote, ICVGIP Conference, Chennai, India, 2010.

International Summer School on Computer Vision, Catania, Italy, 2010.

CVPR International Workshop on Socially Intelligent Surveillance and Monitoring, San Francisco, CA, 2010.

International Workshop on Computer Vision, Vietri sul Mare, Italy, 2010.

Keynote, International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications, Angers, France, 2010.

Neuroinformatics - Colloquia, University Zuerich, Switzerland, 2010.

Workshop of Computer Vision, Beijing, China, 2009.

Emerging Trends in Visual Computing Colloquium, Ecole Polytechnique, Palaiseau, France, November 2008.

ECCV Workshop on Machine Learning for Vision-based Motion Analysis, Marseille, France, October 2008.

CVPR 2007 Area Chair Colloquium, Carnegie Mellon University, Pittsburgh, PA, March 2007.

NIPS Workshop on Evaluation of Articulated Human Motion and Pose Estimation, Whistler, BC, Canada, December 2006.

IEEE CVPR Workshop on Learning, Representation and Context for Human Sensing in Video, New York, NY, June 2006.

IEEE International Workshop on Visual Surveillance, Graz, Austria, May 2006.

Workshop on Computer Vision Based Analysis in Sport Environments, Graz, Austria, May 2006.

International Workshop on Human-Computer Interaction, Graz, Austria, May 2006.

Computer Vision Colloquium, Graz University of Technology, Graz, Austria, January 2006.

Rank Prize Funds Symposium on Machine Understanding of People and Their Responses, Windermere, UK, February 2005.

Pattern Recognition and Computer Vision Colloquium, Czech Technical University, Prague, October 2004.

Keynote, British Machine Vision Conference, Kingston, UK, September 2004.

Digital Imaging in Media and Education Workshop, Austrian Association for Pattern Recognition, Hagenberg, Austria, June 2004.

Editorial duties

Associate Editor for Transactions on Pattern Analysis and Machine Intelligence, 2004 to 2008.

Guest Editor for special issues of the Journal of Computer Vision and Image Understanding in 2001 and 2006.

Reviewer for Transactions on Pattern Analysis and Machine Intelligence, International Journal of Computer Vision, Computer Vision and Image Understanding, Journal of Computer Graphics and Animation, and several international conferences.

Conference duties

Program-Chair, Conference on Computer Vision and Pattern Recognition, 2011.

Area-Chair, Asian Conference on Computer Vision, Xi'an, 2009.

Area-Chair, Conference on Computer Vision and Pattern Recognition, 2007 and 2008.

Area-Chair, European Conference on Computer Vision, Prague, 2006.

Co-Chair and organizer of the "IEEE International Workshop on Modeling People and Human Interaction" at the International Conference on Computer Vision, Beijing, China, October 2005.

Area-Chair, International Conference on Computer Vision, Nice, France, 2003.

Program Co-Chair International Conference on Automatic Face and Gesture Recognition, College Park, Maryland, May 2002.

Co-Chair and organizer of the "IEEE Modeling People Workshop" at the International Conference on Computer Vision, Corfu, Greece, September 1999.

Program committees:

European Conference on Computer Vision (2000, 2002, 2004, 2006, 2008, 2010).

International Conference on Computer Vision (2001, 2003, 2005, 2007, 2009).

Conference on Vision and Pattern Recognition (2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010).

International Symposium on Mixed and Augmented Reality (2004, 2005).

British Machine Vision Conference (2002).

Computer Graphics International (2000).

Computer Animation Conference (2000, 2002).

ACM Symposium on Virtual Reality Software and Technology (1997).

Technology Transfer

Co-founder:

Pix4D, SARL, Lausanne, Switzerland, 2011.

Software licenses sold:

Metaio GmbH, München, Germany, 2010.

Seac02 S.r.l., Torino, Italy, 2006.

Total Immersion, SA, Paris, France, 2005.

Hybris Film Vertigo AS, Oslo, Norway, 2005.

Consulting:

EADS-France, Paris, France.

Geometrix, San Jose, CA.

Microsoft Research, Redmond, WA.

Realviz S.A., Sophia Antipolis, France.

SRI International, Menlo Park, CA.

Patents:

A Method and System for Estimating the Accuracy of Inference Algorithms Using the Self-Consistency Methodology, with Y. Leclerc and Q.T. Luong, US Patent 6834120-B1, 2004.

A Method and System for Detecting Changes in Three Dimensional Shape, with Y. Leclerc and Q.T. Luong, US Patent 6,963,662, 2005.

PUBLICATIONS

Refereed Journals

1. A. Lucchi, K. Smith, A. Radhakrishna, G. Knott, and P. Fua. Supervoxel-Based Segmentation of Mitochondria in EM Image Stacks with Learned Shape Features. *IEEE Transactions on Medical Imaging*, 2011. In press.
2. K. Ali, F. Fleuret, D. Hasler, and P. Fua. A Real-Time Deformable Detector. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2011. In press.
3. A. Varol, A. Shaji, M. Salzmann, and P. Fua. Monocular 3D Reconstruction of Sparsely Textured Surfaces. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2011. In press.
4. M. Calonder, V. Lepetit, M. Ozuysal, T. Trzinski, C. Strecha, and P. Fua. BRIEF: Computing a Local Binary Descriptor Very Fast. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2011. In press.
5. C. Strecha, A. Bronstein, M. Bronstein, and P. Fua. LDAHash: Improved Matching With Smaller Descriptors. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2011. In press.
6. E. Tola, C. Strecha, and P. Fua. Efficient Large Scale Multi-View Stereo for Ultra High Resolution Image Sets. *Machine Vision and Applications*, 2011. In press.
7. J. Berclaz, F. Fleuret, E. Türetken, and P. Fua. Multiple Object Tracking Using K-Shortest Paths Optimization. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 33:1806–1819, September 2011.
8. M. Salzmann and P. Fua. Linear Local Models for Monocular Reconstruction of Deformable Surfaces. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 33(5):931–944, May 2011.
9. E. Türetken, G. Gonzalez, C. Blum, and P. Fua. Automated Reconstruction of Dendritic and Axonal Trees by Global Optimization With Geometric Priors. *Neuroinformatics*, 9:(2-3)279–302, 2011.
10. A. Fossati, P. Schoenmann, and P. Fua. Real-Time Vehicle Tracking for Driving Assistance. *Machine Vision and Applications*, 22(2):439–448, 2011.
11. S. Hinterstoisser, S. Ilic, N. Navab, P. Fua, and V. Lepetit. Learning Real-Time Perspective Patch Rectification. *International Journal of Computer Vision*, 91(1):107–130, 2011.
12. A. Fossati, M. Dimitrijevic, V. Lepetit, and P. Fua. From Canonical Poses to 3D Motion Capture Using a Single Camera. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 32(7):1165–1181, 2010.
13. K. Konolige, J. Bowman, J.D. Chen, P. Mihelich P., M. Calonder, V. Lepetit, and P. Fua. View-based Maps. *International Journal of Robotics Research*, 29(8):941–957, July 2010.
14. E. Tola, V. Lepetit, and P. Fua. Daisy: an Efficient Dense Descriptor Applied to Wide Baseline Stereo. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 32(5):815–830, 2010.
15. M. Ozuysal, M. Calonder, V. Lepetit, and P. Fua. Fast Keypoint Recognition using Random Ferns. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 32(3):448–461, 2010.
16. C. Scherrer, J. Pilet, V. Lepetit, and P. Fua. Souvenirs du Monde des Montagnes. *Leonardo, special issue of ACM SIGGRAPH*, 42(4):350–355, August 2009.

17. A. Shahrokni, F. Fleuret, T. Drummond, and P. Fua. Classification-based Probabilistic Modeling of Texture Transition for Fast Line Search Tracking and Delineation. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 31(3):570–576, March 2009.
18. V. Lepetit, F. Moreno-Noguer, and P. Fua. EPnP: An Accurate $O(n)$ Solution to the PnP Problem. *International Journal of Computer Vision*, 81(2), February 2009.
19. P. Lagger and P. Fua. Retrieving multiple light sources in the presence of specular reflections and texture. *Computer Vision and Image Understanding*, 111(2):207–218, August 2008.
20. F. Fleuret, J. Berclaz, R. Lengagne, and P. Fua. Multi-Camera People Tracking with a Probabilistic Occupancy Map. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 30(2):267–282, February 2008.
21. J. Pilet, V. Lepetit, and P. Fua. Fast Non-Rigid Surface Detection, Registration and Realistic Augmentation. *International Journal of Computer Vision*, 76(2), February 2008.
22. M. Salzmann, J. Pilet, S. Ilić, and P. Fua. Surface Deformation Models for Non-Rigid 3–D Shape Recovery. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 29(8):1481–1487, August 2007.
23. S. Ilić, M. Salzmann, and P. Fua. Implicit Meshes for Effective Silhouette Handling. *International Journal of Computer Vision*, 72(7), 2007.
24. V. Lepetit and P. Fua. Keypoint recognition using randomized trees. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 28(9):1465–1479, September 2006.
25. M. Dimitrijevic, V. Lepetit, and P. Fua. Human Body Pose Detection Using Bayesian Spatio-Temporal Templates. *Computer Vision and Image Understanding*, 104(2-3):127–139, 2006.
26. R. Urtasun, D. Fleet, and P. Fua. Temporal Motion Models for Monocular and Multiview 3–D Human Body Tracking. *Computer Vision and Image Understanding*, 104(2-3):157–177, 2006.
27. H. Dejnabadi, B.M. Jolles, E. Casanova, P. Fua, and K. Aminian. Estimation and Visualization of Sagittal Kinematics of Lower Limbs Orientation using Body-fixed Sensors. *IEEE Transactions on Biomedical Engineering*, 53(7):1385–1393, July 2006.
28. S. Ilić and P. Fua. Implicit Meshes for Surface Reconstruction. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 8(2):328–333, 2006.
29. L. Herda, R. Urtasun, and P. Fua. Hierarchical Implicit Surface Joint Limits for Human Body Tracking. *Computer Vision and Image Understanding*, 99(2):189–209, 2005.
30. R. Urtasun, P. Glardon, R. Boulic, D. Thalmann, and P. Fua. Style-Based Motion Synthesis. *Computer Graphics Forum*, 23(4):1–14, December 2004.
31. L. Vacchetti, V. Lepetit, and P. Fua. Stable Real-Time 3D Tracking using Online and Offline Information. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 26(10):1385–1391, October 2004.
32. L. Herda, R. Urtasun, A. Hanson, and P. Fua. Automatic Determination of Shoulder Joint Limits using Experimentally Determined Quaternion Field Boundaries. *International Journal of Robotics Research*, 22(6), June 2003.

33. R. Plänkers and P. Fua. Articulated Soft Objects for Multi-View Shape and Motion Capture. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 25(10), 2003.
34. Y. G. Leclerc, Q. T. Luong, and P. Fua. Self-Consistency and MDL: a Paradigm for Evaluating Point Correspondence Algorithms and Detecting Change. *International Journal of Computer Vision*, 51(1):63–83, 2003.
35. Q. T. Luong, P. Fua, and Y. G. Leclerc. The Radiometry of Multiple Images. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 24(1):19–33, January 2002.
36. L. Herda, P. Fua, R. Plänkers, R. Boulic, and D. Thalmann. Using Skeleton-Based Tracking to Increase the Reliability of Optical Motion Capture. *Human Movement Science Journal*, 20(3):313–341, 2001.
37. R. Plänkers and P. Fua. Tracking and Modeling People in Video Sequences. *Computer Vision and Image Understanding*, 81(3):285–302, March 2001.
38. P. Fua. Regularized Bundle-Adjustment to Model Heads from Image Sequences without Calibration Data. *International Journal of Computer Vision*, 38(2):153–171, July 2000.
39. R. Lengagne, P. Fua, and O. Monga. 3–D Stereo Reconstruction of Human Faces driven by Differential Constraints. *Image and Vision Computing*, 18(4):337–343, March 2000.
40. P. Fua and C. Miccio. Animated Heads from Ordinary Images: A Least Squares Approach. *Computer Vision and Image Understanding*, 75(3):247–259, September 1999.
41. P. Fua. Fast, Accurate and Consistent Modeling of Drainage and Surrounding Terrain. *International Journal of Computer Vision*, 26(1):1–20, 1998.
42. W. Neuenschwander, P. Fua, L. Iverson, G. Székely, and O. Kubler. Ziplock Snakes. *International Journal of Computer Vision*, 26(3):191–201, December 1997.
43. P. Fua. From Multiple Stereo Views to Multiple 3–D Surfaces. *International Journal of Computer Vision*, 24(1), 19–35, August 1997.
44. P. Fua and C. Brechbühler. Imposing Hard Constraints on Deformable Models Through Optimization in Orthogonal Subspaces. *Computer Vision and Image Understanding*, 65(2):148–162, February 1997.
45. W. Neuenschwander, P. Fua, G. Székely, and O. Kubler. Velcro Surfaces: Fast Initialization of Deformable Models. *Computer Vision and Image Understanding*, 65(2):237–245, February 1997.
46. P. Fua and Y. G. Leclerc. Taking Advantage of Image-Based and Geometry-Based Constraints to Recover 3–D Surfaces. *Computer Vision and Image Understanding*, 64(1):111–127, July 1996.
47. P. Fua and Y. G. Leclerc. Object-Centered Surface Reconstruction: Combining Multi-Image Stereo and Shading. *International Journal of Computer Vision*, 16:35–56, September 1995.
48. P. Fua. A Parallel Stereo Algorithm that Produces Dense Depth Maps and Preserves Image Features. *Machine Vision and Applications*, 6(1):35–49, Winter 1993.
49. P. Suetens, P. Fua, and A. Hanson. Computational Strategies for Object Recognition. *ACM computing surveys*, 24(1):5–61, March 1992.

50. P. Fua and A.J. Hanson. An Optimization Framework for Feature Extraction. *Machine Vision and Applications*, 4(2):59–87, Spring 1991.
51. P. Fua and Y. G. Leclerc. Model Driven Edge Detection. *Machine Vision and Applications*, 3:45–56, 1990.
52. P. Fua and A.J. Hanson. Resegmentation Using Generic Shape: Locating General Cultural Objects. *Pattern Recognition Letters*, 5:243–252, 1987.

Books and Book Chapters

1. M. Salzmann and P. Fua. *Deformable Surface 3D Reconstruction from Monocular Images*. Synthesis Lectures on Computer Vision. Morgan-Claypool Publishers, 2010.
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