Raquel Urtasun

Tel: +1 510 666 2942 Fax: +1 510 666 2956
rurtasun@icsi.berkeley.edu
http://people.csail.mit.edu/rurtasun

Education

Ph.D. in Computer Vision *September 2001 - June 2006*
Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland.
Motion Models for Robust 3D Human Body Tracking.
Advisor: Pascal Fua.

Postgraduate School in Computer Science *Sept 2000 - Sept 2001*
Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland.

M.S. Thesis *Sept 1999 - April 2000*
Corporate Communications Department, Institut EURECOM, Sophia Antipolis, France.

M.S. and B.S in Telecommunication Engineering *April 2000.*
Rank #3 in class of 125, University of Navarra (UPNA), Pamplona, Spain.

Research Interests

- **Computer Vision**: Learning for Vision, Tracking, Object Recognition.
- **Machine Learning**: Non-parametric statistical learning, Gaussian Processes, Latent Variable Models, Multi-view Learning.
- **Computer Graphics**: Character animation and modeling.

Research Experience

Postdoctoral Research Scientist *January 2008 - Present*
UC Berkeley EECS & ICSI

Postdoctoral Associate *October 2006 - August 2008*
MIT Computer Science and Artificial Intelligence Laboratory
Supervisor: Prof. Trevor Darrell

Research Assistant *Fall 2001 - Summer 2006*
Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland.
Research Project: Motion Models for Robust 3D Human Body Tracking
Supervisor: Prof. Pascal Fua.

Invited Visiting Scientist *Summer 2004, 2005, 2006*
Computer Science Department, University of Toronto, Canada.
Supervisor: Prof. David J. Fleet.

Research Assistant *Fall 2000 - Spring 2001*
Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland.
Research Project: Constraints in shoulder movements using Motion capture and Implicit Surfaces.
Supervisor: Prof. Pascal Fua.

Research Assistant *Spring 2000 - Fall 2000*
ENST (Ecole National Superieure de Telecommunications), Paris, France
Research projects: Automatic segmentation of a fix number of markers (apply to the cerebellum and brainstem), Segmentation of a Guinea pig using mathematical morphology.
Supervisor: Prof. Isabelle Bloch and Dr. Petr Dokladal

Research Assistant *Fall 1999 - Spring 2000*
Corporate Communications Department. Institut EURECOM, Sophia Antipolis, France.
Project: Implementation of a tool to Visualize Protocol Design and Processing
Supervisor: Prof. Ernst W. Biersack and Dr. Mathias Jung.

Research Assistant *Fall 1998 - Spring 1999*
Electrical Engineering Department, Universidad de Navarra (UPNA), Pamplona, Spain.
Project: Blind deconvolution applied to EEG.
Supervisor: Prof. Armando Malanda.

Teaching Experience

Co-Instructor
MIT Course 6.976, Seminar on Human Motion Tracking *Fall 2007*

Teaching Assistant
Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland.
Introduction to Computer Vision *Spring 2002, 2003, 2004, 2005, 2006*

Supervised Students

Ph.D. Students

- C. Mario Chirstoudias, *from MIT.*
  Probabilistic Models for Multi-View Semi-Supervised Learning and Coding.
  (Co-supervised with Trevor Darrell, expected June 2009).

M.S. Students

- Andreas Geiger, *from Karlsruhe Institute of Technology* while at *MIT.*
  Rank Priors for Continuous Non-Linear Dimensionality Reduction.
- Sandra Pralong, *from EPFL.*
  3D Implicit Surface Human Body Editor in Maya.
- Mathieu Salzmann, *from EPFL.*
  3D Morphing of triangulated meshes.
- Mattia Bizini, *from EPFL.*
  3D Human Body Tracking using Motion Prediction.
- Reza EteMad-Sajadi, *from EPFL.*
  Temporal Models of Human Motion.

Semester Projects

- Arnaud Tardy, *from EPFL.*
  Primitive-Based Morphing of Implicit Surfaces.

- Alessandra Predali, *from EPFL.*
  Background Substraction.
- Sandra Pralog, *from EPFL.*
  3D Human Body Interface from SGI to Windows and/or Linux.

Academic Awards and Honors

Postgraduate Fellowship *Sept 2000*
School of Computer and Communication Sciences, Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland.

Graduate Fellowship *Sept 1999*
Institut EURECOM, Sophia Antipolis, France. Project: Implementation of a tool to Visualize Protocol Design and Processing

Research Fellowship *June 1998*
Spanish Ministry of Education and Culture. In collaboration with Department of Electrical Engineering, University of Navarra (UPNA), Pamplona, Spain. Project: Blind deconvolution applied to EEG using Principal Component Analysis and Neural Networks.

Award for academic excellency *June 95, June 97, June 98, June 99*
University of Navarra (UPNA), Pamplona, Spain

Publications

- **Journal Papers**
  - A. Kapoor, K. Graumann, **R. Urtasun**, T. Darrell, 'Gaussian Processes for Object Categorization', *Accepted to Appear in International Journal in Computer Vision, (***IJCV***) 2009.*
  - **R. Urtasun**, D. J. Fleet and P. Fua, 'Temporal Motion Models for Monocular and Multiview 3D Human Body Tracking', *Computer Vision and Image Understanding, (***CVIU***) 2006.*
  - L. Herda, **R. Urtasun** and P. Fua, 'Hierarchical Implicit Surface Joint Limits for Human Body Tracking', *Computer Vision and Image Understanding, (***CVIU***) 2005.*
  - **R. Urtasun**, P. Glardon, R. Boulic, D. Thalmann and P. Fua, 'Style-based Motion Synthesis', *In Computer Graphics Forum (***CGF***), Vol. 23, number 4 pp 799-812. December 2004.*
  - L.Herda, **R.Urtasun**, P.Fua, A.Hanson, 'Automatic Determination of Shoulder Joint Limits using Quaternion Field Boundaries', *International Journal of Robotics Research (***IJRR***), 22(6): 419 - 436, 2003.*
  - P. Dokladal, I. Bloch, M. Couprie, D. Ruijters, **R. Urtasun** and L. Garnero, 'Topologically Controlled Segmentation of 3D Magnetic Resonance Images of the Head by using Morphological Operators', *Pattern Recognition, 36(10):2463 - 2478, 2003.*
- **Refereed Conference Papers**
  - C. M. Christoudias, **R. Urtasun** and T. Darrell, 'Multi-View Learning in the Presence of View Disagreement', *In Conference on Uncertainty in Artificial Intelligence (***UAI***) Helsinki, Finland, July 2008.* (oral presentation)
  - **R. Urtasun**, D. J. Fleet, A. Geiger, J. Popović, T. Darrell and N. D. Lawrence, 'Topologically-Constrained Latent Variable Models', *In International Conference in Machine Learning (***ICML***) Helsinki, Finland, July 2008.* (oral presentation)

- **R. Urtasun** and T. Darrell, 'Local Probabilistic Regression for Activity-Independent Human Pose Inference', *In Conference in Computer Vision and Pattern Recognition (***CVPR***) Anchorage, Alaska, June 2008.*
- M. Salzmann, **R. Urtasun** and P. Fua, 'Local Deformation Models for Monocular 3D Shape Recovery', *In Conference in Computer Vision and Pattern Recognition (***CVPR***) Anchorage, Alaska, June 2008.* (oral presentation)
- C. M. Christoudias, **R. Urtasun** and T. Darrell, 'Unsupervised Distributed Feature Selection for Multi-view Object Recognition', *In Conference in Computer Vision and Pattern Recognition (***CVPR***) Anchorage, Alaska, June 2008.*
- A. Kapoor, K. Grauman, **R. Urtasun** and T. Darrell, 'Active Learning with Gaussian Processes for Object Categorization', *In International Conference on Computer Vision (***ICCV***) Rio de Janeiro, Brazil, October 2007.*
- **R. Urtasun**, and T. Darrell, 'Discriminative Gaussian Process Latent Variable Models for Classification', *In International Conference on Machine Learning (***ICML***) Corvalis, Oregon, June 2007.* (oral presentation)
- **R. Urtasun**, D. J. Fleet and P. Fua, '3D People Tracking with Gaussian Process Dynamical Models', *In Conference on Computer Vision and Pattern Recognition (***CVPR***) New York, June 2006.*
- **R. Urtasun**, D. J. Fleet, A. Hertzmann and P. Fua, 'Priors for People Tracking from Small Training Sets', *In Internationa Conference on Computer Vision (***ICCV***) Beijing, china, October 2005.* (oral presentation)
- **R. Urtasun**, D. J.Fleet and P. Fua, 'Monocular 3D Tracking of the Golf Swing', *In Conference on Computer Vision and Pattern Recognition (***CVPR***) San Diego, CA, June 2005.*
- **R. Urtasun** and P. Fua, '3D Human Body Tracking using Deterministic Motion Models', *In European Conference on Computer Vision (***ECCV***), Prague, Czech Republic, May 2004.*
- L.Herda, **R. Urtasun** and P. Fua, 'Hierarchical Implicit Surface Joint Limits to Constrain Video-Based Motion Capture', *In European Conference on Computer Vision (***ECCV***), Prague, Czech Republic, May 2004.*
- **R. Urtasun** and P. Fua, '3D Tracking for Gait Characterization and Recognition', *In Proceeding of the 6th International Conference on Automatic Face and Gesture Recognition (***FGR***), Seoul, Korea, May 2004. IEEE Computer Society.* (oral presentation)
- L.Herda, **R.Urtasun**, P.Fua and A.Hanson, 'An Automatic Method for Determining Quaternion Field Boundaries for Ball-and-Socket Joint Limits', *Proceeding of the 5th International Conference on Automatic Face and Gesture Recognition (***FGR***), pages 95 - 100, Washington DC, May 2002. IEEE Computer Society.*
- P. Dokladal, **R. Urtasun**, I. Bloch and L. Garnero, 'Segmentation of 3D head MR images using Morphological reconstruction under constraints and automatic selection of markers', *International Conference on Image Processing (***ICIP***), pages 1075-1078, Thessaloniki, Greece, October 2001.*

- **Workshops**
  - **R. Urtasun** and T. Darrell, 'Local Probabilistic Regression for Activity-Independent Human Pose Inference', *In Learning Workshop Snowbird.* Snowbird, Utah, April 2008.
  - **R. Urtasun**, A. Quattoni, N. D. Lawrence and T. Darrell, 'Transfering Nonlinear Representations using Gaussian Processes with a Shared Latent Space', *In Learning Workshop Snowbird.* Snowbird, Utah, April 2008.

- **R. Urtasun**, D. J. Fleet, T. Darrell and N. D. Lawrence, 'Topologically-Constrained Latent Variable Models', *In NIPS Workshop on Topology Learning*, Whistler December 2007
- **R. Urtasun**, D. J. Fleet and N. D. Lawrence, 'Modeling human locomotion with topologically constrained latent variable models', *In ICCV Workshop on Human Motion: Understanding, Modeling, Capture and Animation*. Rio de Janeiro, Brazil, October 2007. (oral presentation)
- **R. Urtasun**, 'Gaussian Processes for Monocular 3D Person tracking', *In BIRS 2006 Workshop on Mathematical Methods in Computer Vision*, Banff, Canada. October 2006 (invited talk)
- **R. Urtasun**, D. J. Fleet, A. Hertzmann and P. Fua, 'Gaussian Processes for Monocular 3D People tracking', *In Gaussian Processes in Practice Workshop*, Bletchley Park, U.K. June 2006 (invited talk)

- **Technical Reports**
  - **R. Urtasun**, M. Salzmann and P. Fua, '3D Morphing without User Interaction', *EPFL Technical report* 2004.
  - **R. Urtasun**, 'Automatic segmentation of a fix number of markers (apply to the cerebellum and brainstem)', *ENST Telecom Paris Technical report* 2000.
  - **R. Urtasun**, 'Segmentation of a Guinea pig using mathematical morphology ', *ENST Telecom Paris Technical report* 2000.

Talks

- **USC**
  Non-Parametric Latent Variable Models for Shape and Motion Analysis. Hosted by Prof. Fei Sha and Prof. Ram Nevatia , December 2008.
- **UC Berkeley Computer Graphics Seminar**
  Non-Parametric Latent Variable Models for Shape and Motion Analysis. Hosted by Prof. James O'Brian, November 2008
- **UC Berkeley Computer Vision Seminar**
  Non-Parametric Latent Variable Models for Shape and Motion Analysis. Hosted by Prof. Jitendra Malik, October 2008.
- **UC Berkeley TILab**
  Gaussian Processes for Character Animation and Tracking. Hosted by Prof. Ruzena Bajcsy, September 2008.
- **In International Conference in Machine Learning**
  Topologically-Constrained Latent Variable Models. Helsinki, Finland, July 2008.
- **University of Manchester**
  Probabilistic non-parametric models for shape recovery and pose estimation. Hosted by Prof. Neil Lawrence, May 2008.
- **MIT** Seminar Graphics Group
  Local Deformation Models for Monocular 3D Shape Recovery. Hosted by Prof. Jovan Popovic and Prof. Fredo Durand, March 2008
- **In ICCV Workshop on Human Motion: Understanding, Modeling, Capture and Animation**
  Modeling human locomotion with topologically constrained latent variable models. Rio de Janeiro, Brazil, October 2007.

- **MIT** Seminar Vision Group
  hosted by Prof. William Freeman and Prof. Antonio Torralba, October 2007.
- **In International Conference in Machine Learning**
  Discriminative Gaussian Process Latent Variable Models for Classification. Corvalis, Oregon, June 2007.
- **University of Manchester**
  hosted by Prof. Neil Lawrence, April 2007.
- **MIT** Seminar Graphics Group
  hosted by Prof. Jovan Popovic, March 2007
- **Boston University** IVC Seminar series
  hosted by Prof. Stan Sclaroff, March 2007
- **MIT** Seminar Vision Interface Group
  hosted by Prof. Trevor Darrell, October 2006
- **BIRS 2006 Workshop on Mathematical Methods in Computer Vision**
  Gaussian Processes for Monocular 3D Person tracking. Banff, Canada, hosted by Prof. Bill Triggs, October 2006.
- **CMU VASC Seminar Series** hosted by Sonya Allin, June 2006
- **Gaussian Processes in Practice Workshop**
  Gaussian Processes for Monocular 3D People tracking. Bletchley Park, U.K., hosted by Prof. Neil Lawrence, June 2006
- **In International Conference on Computer Vision**
  Priors for People Tracking from Small Training Sets. Beijing, China. October 2005.
- **CIAR summer school, University of Toronto**
  Toronto, Canada, hosted by Prof. David Fleet. July 2005.
- **In International Conference on Automatic Face and Gesture Recogni- tion**
  3D Tracking for Gait Characterization and Recognition. Seoul, Korea. May 2004.
- **University of Toronto**
  hosted by Prof. David Fleet, September 2003.

Program Commitee

Computer Vision:

- ICCV09
- CVPR09
- ECCV08
- CVPR07
- ICCV07

Machine Learning:

- ICML09
- IJCAI09

- NIPS08
- ICML08

Professional Activities

- Reviewer for International Journals: *Transactions on Pattern Analysis and Machine Intelligence, International Journal in Computer Vision, Transactions on Graphics, Computer Vision and Image Understanding, Image and Vision Computing, etc.*
- Reviewer for International Conferences: *International Conference on Computer Vision, Computer Vision and Pattern Recognition, European Conference on Computer Vision, SIGGRAPH, SIGGRAPH-ASIA etc.*