Sanja Fidler

Curriculum Vitae

Work address:
Sanja Fidler
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Position

Research Assistant Professor at Toyota Technological Institute at Chicago

Research Interests

Computer vision, biological vision, object class recognition and detection, large-scale object detection, 3D object detection, object segmentation, hierarchical representations, scene understanding.

Education

2010 **Ph.D. in computer science**
Department of computer and information science, University of Ljubljana
Thesis title: *Recognizing visual object categories with subspace methods and a learned hierarchical shape vocabulary*

2002 **B.S. in applied mathematics**
Department of mathematics and physics, University of Ljubljana
Thesis title: *Independent Component Analysis*

Research experience

Jul 2012 – present **Research Assistant Professor**
Toyota Technological Institute at Chicago

Feb 2011 – Jun 2012 **Postdoctoral fellow**
University of Toronto
Supervisor: Prof. Sven Dickinson

Jan – Aug 2010 **Invited Visiting Scientist**
UC Berkeley
Supervisor: Prof. Trevor Darrell

2008 – 2010 **Research Assistant**
Department of computer and information science, University of Ljubljana
Research project: EU FP7 ICT Cognitive Systems STREP Project POETICON
Supervisor: Prof. Aleš Leonardis

2002 **Research Assistant**
Department of electrical engineering, University of Ljubljana
Project: Biomedical image analysis
Supervisor: Prof. Franjo Pernuš

Teaching experience

2003 – 2007 **Teaching Assistant (12h/week)**
Department of computer and information science, University of Ljubljana
Courses:

2003 – 2007	Calculus I and II
2003 – 2007	Discrete mathematics
2003 – 2004	Probability Theory
2003 – 2007	Programming (c, Mathematica)
2003	Optimization

Awards

2012 **Best reviewer award**
Computer Vision and Pattern Recognition (CVPR)

2012 **Best reviewer award**
European Conference on Computer Vision (ECCV)

2008 **Best reviewer award**
European Conference on Computer Vision (ECCV)

2007 **Best teaching assistant award**
Department of computer and information science, University of Ljubljana

2007 **Best Ph.D. student presentation**
Student competition at EU Cognition project meeting
`http://www.eucognition.org/euCognition_2006-2008/six_monthly_meeting_2.htm`
Presentation title: *Learning Hierarchical Representations of Object Categories*

2006 **Award for the postgraduate studies**
Department of computer and information science, University of Ljubljana

2003 **Best paper award**
Austrian Association for Pattern Recognition (OAGM/AAPR) conference

2002 **Award for the Diploma thesis**
Department of mathematics and physics, University of Ljubljana

1992 – 2002 **National scholarship for exceptional students**

1991 – 1995 First, second and two third places at the national competitions in mathematics

Service

Journal Reviewing

IEEE Pattern Analysis and Machine Intelligence (IEEE PAMI)

Internation Journal of Computer Vision (IJCV)

Robotics and Autonomous Systems (RAS)

Pattern Recognition (PR)

Program Committees

2009 – 2012	IEEE Computer Vision and Pattern Recognition (CVPR)
2009 – 2013	IEEE International Conference on Computer Vision (ICCV)
2008 – 2012	European Conference on Computer Vision (ECCV)
2009	Asian Conference on Computer Vision (ACCV)

Organization

Publication co-chair for CVPR 2013

Presentations chair for CVPR 2010

In organizing committee of International Mathematical Olympiad 2006

Grants

Worked on DARPA's program Mindseye

Participated in writing the proposal, and worked on the EU FP7 ICT Cognitive Systems STREP Project, POETICON - "The Poetics of everyday life: Grounding resources and mechanisms for artificial agents", 2008 – 1010, (Grant 350.000 EUR)

Participated in writing the proposal, and worked on DARPA-BAA-09-58 Neovision2, 2010, (Grant $320.000)

Participated in writing the proposal for project *Learning a large number of visual object categories for content-based retrieval in image and video databases*, Slovenian Research Agency (ARRS), 2010.

Other

Coding skills: Matlab, C++

2010: Technical consulting for computer start-up Suplea, Ljubljana

1999 – 2001: Co-developed nuclear medicine software MedicView and co-founded: `http://www.medicimaging.com`

Publications

Journal Articles

- **S. Fidler**, M. Boben, A. Leonardis. Learning a Hierarchical Compositional Shape Vocabulary for Multi-class Object Representation. Under minor revision in *IEEE Transactions on Pattern Analysis and Machine Intelligence (IEEE PAMI)*.
- L. Furst, **S. Fidler**, A. Leonardis. Selecting features for object detection using an AdaBoost-compatible evaluation function. *Pattern Recognition Letters (PRL)*, 2008, vol. 29, no. 11, pp. 1603 – 1612.
- **S. Fidler**, D. Skočaj, A. Leonardis. Combining Reconstructive and Discriminative Subspace Methods for Robust Classification and Regression by Subsampling. *IEEE Transactions on Pattern Analysis and Machine Intelligence (IEEE PAMI)*, 2006, vol. 28(3), pp. 337 – 350.

Book chapters

- **S. Fidler**, M. Boben, A. Leonardis. Learning Hierarchical Compositional Representations of Object Structure. In: *Object Categorization: Computer and Human Vision Perspectives*, Editors: S. Dickinson, A. Leonardis, B. Schiele and M. J. Tarr, Cambridge University Press, 2009.
- M. Fritz, M. Andriluka, **S. Fidler**, M. Stark, A. Leonardis, B. Schiele. Categorial Perception. In: *Cognitive Systems*, Editors: H. I. Christensen, G.-J. Kruijff, A. Sloman and J. Wyatt, Springer, 2010.

Conference papers

- R. Mottaghi, **S. Fidler**, J. Yao, R. Urtasun, D. Parikh. Analyzing Semantic Segmentation Using Human-Machine Hybrid CRFs. In *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2013.
- **S. Fidler**, R. Mottaghi, A. Yuille, R. Urtasun. Bottom-up Segmentation for Top-down Detection. In *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2013.
- **S. Fidler**, A. Sharma, R. Urtasun. A Sentence is Worth a Thousand Pixels. In *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2013.
- **S. Fidler**, S. Dickinson, R. Urtasun. 3D Object Detection and Viewpoint Estimation with a Deformable 3D Cuboid Model. In *Neural Information Processing Systems Conference (NIPS)*, 2012.
- J. Yao, **S. Fidler**, R. Urtasun. Describing the Scene as a Whole: Joint Object Detection, Scene Classification and Semantic Segmentation. In *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2012.
- Z. Zhang, **S. Fidler**, J. W. Waggoner, Y. Cao, J. M. Siskind, S. Dickinson, W. Wang. Superedge grouping for object localization by combining appearance and shape information. In *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2012.
- A. Barbu, A. Bridge, Z. Burchill, D. Coroian, S. Dickinson, **S. Fidler**, A. Michaux, S. Mussman, S. Narayanaswamy, D. Salvi, L. Schmidt, J. Shangguan, J. Siskind, J. Waggoner, S. Wang, J. Wei, Y. Yin, and Z. Zhang. Video In Sentences Out. *Conference on Uncertainty in Artificial Intelligence (UAI)*, 2012.

- W. May, **S. Fidler**, A. Fazly, S. Stevenson, and S. Dickinson. Unsupervised Disambiguation of Image Captions. *First Joint Conference on Lexical and Computational Semantics (*SEM)*, 2012.
- T. Lee, **S. Fidler**, A. Levinshtein, and S. Dickinson. Learning Categorical Shape from Captioned Images. *Canadian Conference on Computer and Robot Vision (CRV)*, 2012.
- S. Karayev, M. Fritz, **S. Fidler**, T. Darrell. A Probabilistic Model for Recursive Factorized Image Features. In *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2011.
- **S. Fidler**, M. Boben, A. Leonardis. A coarse-to-fine Taxonomy of Constellations for Fast Multi-class Object Detection. In *European Conference on Computer Vision (ECCV)*, 2010.
- **S. Fidler**, M. Boben, A. Leonardis. Evaluating multi-class learning strategies in a generative hierarchical framework for object detection. In *Neural Information Processing Systems Conference (NIPS)*, 2009.
- **S. Fidler**, M. Boben, A. Leonardis. Optimization framework for learning a hierarchical shape vocabulary for object class detection. In *British Machine Vision Conference (BMVC)*, 2009.
- **S. Fidler**, M. Boben, A. Leonardis. Similarity-based cross-layered hierarchical representation for object categorization. In *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2008.
- **S. Fidler**, A. Leonardis. Towards scalable representations of object categories : learning a hierarchy of parts. In *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2007.
- A. Leonardis, **S. Fidler**. Learning hierarchical representations of object categories for robot vision. In *ISRR 2007 : 13th International Symposium of Robotics Research*, 2007, Hiroshima, Japan, pp. 125 – 136. **Invited paper**.
- **S. Fidler**, G. Berginc, A. Leonardis. Hierarchical Statistical Learning of Generic Parts of Object Structure. In *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2006.
- D. Skočaj, A. Leonardis, **S. Fidler**. Robust estimation of canonical correlation coefficients. In *Digital imaging in media and education : 28th workshop of the Austrian Association for Pattern Recognition (AAPR)*, 2004, pp. 15-22.
- **S. Fidler**, A. Leonardis. Robust LDA classification by subsampling. In *Workshop in Statistical Analysis in Computer Vision* in conjunction with IEEE Computer Vision and Pattern Recognition, 2003.
- **S. Fidler**, A. Leonardis. Robust LDA classification. In *Vision in a dynamic world: 27th workshop of the Austrian Association for Pattern Recognition (AAPR)*, 2003, pp. 119-126. *Best paper award.*

Abstracts

- A. Leonardis and **S. Fidler**. A hierarchical computational model of statistical learning of two-dimensional visual shapes. In *32nd European Conference on Visual Perception (ECVP)*, 2009.
- **S. Fidler**, M. Boben, A. Leonardis. A bottom-up and top-down optimization framework for learning a compositional hierarchy of object classes. In *First Workshop on Stochastic Image Grammars (SIG), in conjunction with CVPR*, 2009.

Theses

PhD thesis

Recognizing visual object categories with subspace methods and a learned hierarchical shape vocabulary. University of Ljubljana, 2010.

Diploma thesis

Independent component analysis. University of Ljubljana, 2002.