

# SINISA TODOROVIC

School of EECS  
1148 Kelley Engineering Center  
Oregon State University  
Corvallis, OR 97330  
Tel: (541) 737-7268, Fax: (541) 737-1300  
<http://web.engr.oregonstate.edu/~sinisa>  
[sinisa@eecs.oregonstate.edu](mailto:sinisa@eecs.oregonstate.edu)

## EDUCATION

- **Ph.D.** in electrical and computer engineering, University of Florida, 2005  
Dissertation: “Irregular-Structure Tree Models for Image Interpretation”
- **M.S.** in electrical and computer engineering, University of Florida, 2002  
Thesis: “Statistical Modeling and Segmentation of Sky/Ground Images”
- **B.S./M.S.** in electrical engineering, University of Belgrade, Serbia, 1994

## EMPLOYMENT

- 09/14–now: **Associate Professor**, School of EECS, Oregon State University
- 09/08–09/14: **Assistant Professor**, School of EECS, Oregon State University
- 05/05–08/08: **Postdoctoral Fellow**, Beckman Institute, University of Illinois at Urbana-Champaign
- 01/02–05/05: **Research Assistant**, University of Florida, ECE Department
- 11/94–07/01: **Software Engineer**, Siemens

## GRADUATE STUDENT ADVISING

- Current PhD Students:
  - Khoi Nguyen, 2015 – now, CS, (started with an M.S. degree)
  - Dimitrios Trigkakis, 2015 – now, CS, (started with an M.S. degree)
  - Xu Xu, 2013 – now, CS, (started with an M.S. degree)
  - Peng Lei, 2013 – now, CS, (started with an M.S. degree)
  - Michael Lam, 2012 – now, CS, (started with a B.S. degree)
    - M.S. Thesis: “Object Detection in Biological Images Using a Search-Based Framework,” May 2014
  - Anirban Roy, 2011 – now, CS, (started with a B.S. degree)
    - Passed the PhD qualifier exam,
    - M.S. Thesis: “Learning Affinities of Exemplar Videos for View-Invariant Action Rec.,” Aug 2013
- Graduated PhD Students
  - Behrooz Mahasseni, 2011 – 2016, CS, (started with an M.S. degree)
    - Ph.D. Dissertation: “Robust and Efficient Classification of Videos in the Wild,” Dec 2016
  - Mohamed Amer, 2009 – 2014, EE, (started with a B.S. degree)
    - Ph.D. Dissertation: “Hierarchical Graphical Models for Activity Recognition in Videos,” May 2014,
    - M.S. Thesis: “Recognizing Human Activities in Video through Mining Optimal Features,” May 2011
  - Nadia Payet, 2008 – 2011, CS, (started with an M.S. degree)
    - PhD Dissertation: “From Shape-based Object Rec. and Discovery to 3D Interpretation,” May 2011

- William Brendel, 2008 – 2011, CS, (started with an M.S. degree)
  - PhD Dissertation: “From Multitarget Tracking To Event Recognition in Videos,” May 2011
- Graduated MS Students
  - Chenyu Wang, 2015 – 2017, CS
    - MS Report: “Fine Grained Video Classification for Endangered Bird Species Protection”, February 2017
  - Yao Zhou, 2013 – 2015, CS
    - MS Thesis: “Scoring Shape Characters of Monocot Leaves”, July 2015
  - Zhongyuan Feng, 2012 – 2015, CS
    - MS Thesis: “Efficient Incremental Panorama Reconstruction from Multiple Videos”, May 2015
  - Xu (Shell) Hu, 2012 – 2015, started as a PhD student in CS
    - MS Thesis: “Part-Based Models for Analyzing Tooth Characters of Bat Skulls”, March 2015
  - Shravya Varakantham, 2012 – 2014, CS
    - MS Thesis: “Computer vision for geometrical analysis of bridge gusset plates”, October 2014
  - Amit Bawaskar, 2012 – 2014, CS
    - MS Thesis: “Interactive Player Tracking in Videos of American Football”, May 2014
  - Nikhil Tej, 2010 – 2013, CS
    - MS Thesis: “Annotation of Image Segments with Ontologies (AISO)”, Sep 2013
  - Yaofei Feng, 2011 – 2013, CS
    - MS Thesis: “Fine-grained Detection and Localization of Objects in Images,” May 2013
  - Sharath Kumar Dhamodaran, 2011 – 2013, CS
    - MS Thesis: “Pattern Discovery in Noisy Images,” May 2013
  - Jennifer Inouye, 2010 – 2012, CS
    - MS Thesis: “Analysis of Bio-based Composites for Image Segm. with the Aid of Games,” June 2012
  - Tian Liu, 2008 – 2010, CS
    - MS Thesis: “Region Based Image Matching for 3D Object Recognition,” June 2010
- Supported PhD Students
  - Zahra Iman, 2013 – 2015, PhD, CS
  - Amirehosein Azarbakht, 2011-2012, PhD, CS

## **AWARDS AND HONORS**

- Senior Member, IEEE 2013
- Outstanding Reviewer Award, ICCV 2007
- Jack Neubauer Best Paper Award in IEEE Transactions on Vehicular Technology, 2004

## **CURRENT AND PRIOR RESEARCH FUNDING**

- DARPA - I2O, \$5M (my share \$600K), Co-PI, 05/01/2017-04/30/2021  
Title: “Learning and Communicating Explainable Representations for Analytics and Autonomy”
- DOE - EREE, \$700K (my share \$350K), Co-PI, 04/01/2017-03/31/2020  
Title: “A Heterogeneous System for Eagle Detection, Deterrent, and Wildlife Collision Detection for Wind Turbines”
- NSF, \$3M (my share \$160K), Co-PI, 01/01/2016-12/31/2020  
Title: “NRT-DESE: Risk and Uncertainty Quantification in Marine Science and Policy”

- NSF, \$6.2M (my share \$180K), Co-PI, 01/01/2014-12/31/2017  
Title: “cROP: Common Reference Ontologies and Applications for Plant Biology”
- NSF, \$1M, (my share \$500K), PI, 09/01/2013-08/31/2017  
Title: “RI: Medium: Collaborative Research: Object and Activity Recognition as the Maximum Weight Sub-graph Problem with Mutual Exclusion Constraints”
- NSF, \$150K (my share \$150K), Co-PI, 04/01/2015-06/15/2016  
Title: “AVATOL-Next Generation Phenomics for the Tree of Life (supplement)”
- NSF, \$870K (my share \$500K), Co-PI, 04/01/2012-03/31/2015  
Title: “AVATOL-Next Generation Phenomics for the Tree of Life”
- HUDL, \$88K (my share \$44K), Co-PI, 01/01/2015-06/15/2015  
Title: “Digital Scout Project: Phase 4”
- HUDL, \$250K (my share \$120K), Co-PI, 09/01/2013-12/31/2014  
Title: “Digital Scout Project: Phase 3”
- HUDL, \$500K (my share \$250K), Co-PI, 10/25/2011-09/01/2013  
Title: “Digital Scout Project: Phase 2”
- Oregon Trawl Commission (ARF at OSU), \$61.5K (no overhead), PI, 09/15/2012-09/14/2013  
Title: “Development and evaluation of image recognition software to screen video images collected onboard commercial fishing boats”
- Oregon Department of Transportation, \$440K (my share \$119.5K), Co-PI, 04/13/2012-12/31/2014  
Title: “Imaging Tools for Evaluation of Gusset Plate Connections in Steel Truss Bridges”
- NSF RI, \$16K, PI, 06/15/2012-06/14/2013  
Title: “REU Supplement: RI: Small: Grounding Probabilistic Temporal Logic in a Hierarchy of Video Segmentation Tubes”
- DARPA, \$5M (my share \$351K), Co-PI, 11/01/2011–03/25/2015  
Title: “SEE on a Unified Foundation for Representation, Inference and Learning”
- NSF, \$5K, PI, 08/2011  
Title: “SIG-11: Second International Workshop on Stochastic Image Grammars”
- OSU GRF, \$10K (no overhead), PI, 01/2011–12/2011  
Title: “Advancing Bio-Based Composites by Automated Image Analytics”
- NSF, \$450K, PI, 09/2010–09/2013  
Title: “RI: Small: Grounding Probabilistic Temporal Logic in a Hierarchy of Video Segmentation Tubes”
- NSF, \$380K, Co-PI, 09/2008–09/2011  
Title: “RI: Small: Discovery, Modeling and Recognition of Objects in Image Sets”
- TTCL, \$100K, Co-PI, 11/2007–10/2008  
Title: “Machine Vision Inspection of Structural Railcar Components”
- NSF, \$100K, Co-PI, 08/2007–08/2008  
Title: “RI: SGER: Segmentation Trees and their Robust Matching as Core Technologies for Recognition”

## **DIVERSITY AT OREGON STATE UNIVERSITY**

- Search Advocate, Workshop 1 and Workshop 2 – Feb 2016

## SERVICE AT OREGON STATE UNIVERSITY

- Faculty Committees
  - Graduate Committee – 2008-12
  - Faculty Hiring Committee – 2012-17; Chair 2015/16; Chair 2016/17
  - College of Engineering Promotion & Tenure Committee – 2015-17
- PhD Committees
  - Lucas Wells – advisor: Prof. J. Kiser, Forest Engineering, Resources and Management
  - Daniel Ching – advisor: Prof. F. Kamke, Wood Science and Engineering
  - Anh Pham – advisor Prof. R. Raich
  - Yuanli Pei – advisor Prof. X. Fern
  - Travis Moor – advisor W. K. Wong
  - Arash Abbasi – advisor Prof. H. Liu
  - Hamid Mahmoudabadi (graduated, Summer 2015) – advisor Prof. M. Olsen, Civil Engineering
  - Mohammad Javad Norooz Olliaee (graduated, Summer 2015) – advisor Prof. B. Hamdaoui
  - Ben Tribelhorn (graduated, Summer 2014) – advisor Prof. M. Bailey
  - Heng Zhang (graduated, Spring 2011) – advisor Prof. H. Liu
  - Rob Hess (graduated, graduated, Spring 2010) – advisor Prof. A. Fern
  - Matthew L. Reed (graduated, Spring 2010) – advisor Prof. M. Bailey
- MS Committees
  - Zheng Zhou – advisor Prof. Fuxin Li
  - Yilong Ma – advisor Prof. Jinsub Kim
  - Teresa Vania Tjahja – advisor Prof. Xioali Fern
  - Vikedo Terhuja (graduated) – advisor Prof. Alan Fern
  - Mizuki Kagaya (graduated) – advisor Prof. Eugene Zhang
  - Mohammad Javad Norooz Olliaee (graduated) – advisor Prof. Bechir Hamdaoui
  - Gaole Jin (graduated) – advisor Prof. Raviv Raich
  - Travis Moor (graduated) – advisor Weng-Keen Wong
- MEng Committees
  - Bin Zhang (March 2016)
  - Yu Zhang (March 2016)
- Honors BS Committees
  - William Maurer – advisor Prof. Roberto Albertani
- GCR on PhD Committees
  - Kalbi Flavien Zongo – advisor: Sarah Emerson, Statistics
  - Dejan Dudich (MS, graduated 2015) – advisor: Salvador Hernandez, Civil Engineering
  - Ali Alsaman (PhD, graduated 2013) – advisor: David Sillars, Civil Engineering
  - Matthew McIntire (PhD, graduated 2012) – advisor: Chris Hoyle, Mechanical Engineering
  - Shuping Jiang (PhD, graduated 2012) – advisor: Lan Xue, Statistics
- ASE Saturday Academy
  - Anita Chow, Salem, OR (2011)
  - Casey Schafer, Corvallis, OR (2011)
- REU
  - Antonio Dimicco, EECS OSU (2012)
  - Katherine Maack, EECS OSU (2012)
  - Jin Yi, EECS OSU (2012)

## SYNERGISTIC ACTIVITIES

- Associate Editor:
  - Pattern Recognition Letters , 2010-2014
  - Image and Vision Computing , 2009-now
- Opinions Editor:
  - Image and Vision Computing , 2014-now
- Guest Editor: - Special Issue on Stochastic Image Grammars in International Journal of Computer Vision , 2009
- Area Chair:
  - CVPR: 2012, 2014, 2017
- Program Chair:
  - 11th IEEE International Conference on Automatic Face and Gesture Recognition 2015 (FG 2015)
  - International Workshops on Stochastic Image Grammars: SIG-09 (at CVPR '09); SIG-11 (at ICCV '11)
- Short-Course Co-Organizer:
  - SIG-12: Tutorial on Stochastic Image Grammars for Object, Scene and Event Understanding at CVPR 2012
  - SPIL-15: Search and Planning for Inference and Learning in Computer Vision at CVPR 2015
- Program Committee Member/Reviewer:
  - Journals:*
    - IEEE Trans. Pattern Analysis Machine Intelligence
    - IEEE Trans. Image Processing
    - Computer Vision and Image Understanding
    - Image and Vision Computing
    - Statistical Analysis and Data Mining
    - IEEE Transactions on Circuits and Systems for Video Technology
    - IEEE Trans. Multimedia
    - IET Computer Vision
    - ACM Transactions on Graphics
    - Pattern Recognition
  - Conferences:*
    - ICCV – IEEE Int. Conf. on Computer Vision, 2007-15
    - CVPR – IEEE Conf. Computer Vision Pattern Recognition, 2006-16
    - ECCV – European Conf. Computer Vision, 2006-16
    - NIPS – Neural Information Processing Systems, 2011-15
    - ICPR – IAPR Int. Conf. Pattern Recognition, 2006-8
    - 3dRR-07 – 3D Representation for Recognition, ICCV Workshop, 2007
    - VISAPP – Int. Conf. Computer Vision Theory Applications, 2006-8
    - FG – IEEE Int. Conf. Automatic Face Gesture Recognition, 2006
    - FGVC – IEEE Workshop on Fine-Grained Visual Categorization, 2011
    - ICRA – IEEE Conf. Robotics Automation, 2004
    - ICARCV – IEEE Int. Conf. Control Automation Robotics Vision, 2006
    - PSIVT – IEEE Pacific-Rim Symposium Image Video Technology, 2006
    - GbR – Graph-based Representations in Pattern Recognition, 2009
    - SIGGRAPH – Special Interest Group on GRAPHics and Interactive Techniques, 2010-11
    - SSSPR – Structural, Syntactic, and Statistical Pattern Recognition, 2014

## INVITED TALKS

- “Computer Vision and AI: 10-year Vision”  
2015: Strategy and Technology Workshop (STW), Huawei Technologies Co., Ltd.

- “Fine-Grained Recognition for Building the Tree of Life”  
2013: Workshop on Fine-Grained Visual Categorization at CVPR 2013, Portland, OR
- “Human Activities as Stochastic Kronecker Graphs”  
2013: Institute for Pure and Applied Mathematics Graduate Summer School, Los Angeles, CA
- “Modeling Videos of Human Activities with Repetitive Structure”  
2013: Imperial College, London, UK  
2012: International Workshop on Pattern Recognition, Beijing, China
- “Cost-sensitive top-down/bottom-up inference for multiscale activity recognition”  
2013: Institute for Pure and Applied Mathematics Graduate Summer School, Los Angeles, CA  
2012: International Summer School on Vision, Learning and Cognition, Beijing, China
- “The Tree of Life – Computer Vision for Next Generation Phenomics”  
2012: Frontiers of Computer Vision, Providence, RI
- “Probabilistic First-Order Logic for Robust Reasoning in Vision”  
2011: Frontiers of Computer Vision, M.I.T., Cambridge, MA
- “Object and Activity Recognition Grounded on Mid-Level Image Representations”  
2011: Microsoft Computer Vision Seminar, Redmond, WA
- “Shape of Human Actions”  
2011: Keynote talk at 4th Int. Workshop on Shape Perception in Human and Computer Vision, the Vision Sciences Society annual meeting, Naples, FL
- “Apprenticeships in Science and Engineering – Video Painting”  
2011: ASE Midsummer Conference, Oregon State University
- “Object Discovery and Recognition in an Ensemble of Image Segmentations”  
2010: U. of Illinois Urbana-Champaign ECE Colloquium, U. of Michigan AI Seminar
- “Discriminative and generative models for object recognition”  
2009: Invited Speaker for 1st Sino-USA Summer School in Vision, Learning, and Pattern Recognition, Peking University, Beijing, China
- “From hierarchies of regions to image understanding”  
2009: HP Labs, Universita Ca’Foscari Venezia, Sino-USA summer school of vision, Oregon Health and Science University (OHSU)
- “Unsupervised modeling, recognition, and segmentation of visual categories”  
2008: Google Tech Talks, Ricoh Innovations Inc., Oregon State Univ., UCLA, CMU, UIUC Beckman Institute
- “Multiscale linear discriminant analysis and dynamic tree structured belief networks”  
2004: Eglin Air Force Base

## BOOK CHAPTERS

1. S. Todorovic, “Structured Prediction for Object Boundary Detection in Images,” in “Advanced Structured Prediction,” Editors: Sebastian Nowozin, Peter V. Gehler, Jeremy Jancsary, and Christoph H. Lampert, Publisher: MIT Press, 2014 (pp. 363-388)
2. S. Todorovic and N. Payet, “Shape-based object discovery in images,” in “Shape Perception in Human and Computer Vision,” Editors: S. Dickinson and Z. Pizlo, Publisher: Springer, 2013 (pp. 399-412)

## JOURNAL PUBLICATIONS

1. H. Mahmoudabadi, M. J. Olsen, and S. Todorovic, “Detecting sudden moving objects in a series of digital images with different exposure times,” in *Computer Vision and Image Understanding*, (available online), 2017.

2. Z. Deng, S. Todorovic, and L. Latecki, "Unsupervised object region proposals for RGB-D indoor scenes," in *Computer Vision and Image Understanding*, vol. 154, pp. 127-136, 2017
3. H. Mahmoudabadi, M. J. Olsen, and S. Todorovic, "Efficient terrestrial laser scan segmentation exploiting data structure," in *ISPRS Journal of Photogrammetry and Remote Sensing*, volume 119, pp. 135-150, 2016.
4. S. Kaltwang, S. Todorovic, and M. Pantic, "Doubly sparse Relevance Vector Machine for continuous facial behavior estimation", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 38, issue 9, pp. 1748 - 1761, 2016
5. M. Amer and S. Todorovic, "Sum product networks for activity recognition", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 38, issue 4, pp. 800-813, 2016
6. M. Amer, S. Yousefi, R. Raich, and S. Todorovic, "Monocular extraction of 2.1D sketch using constrained convex optimization", *International Journal of Computer Vision*, vol. 112, issue 1, pp. 23-42, 2015
7. N. Lingutla, J. Preece, S. Todorovic, L. Cooper, L. Moore and P. Jaiswal, "AISO: Annotation of image segments with ontologies", *Journal of Biomedical Semantics*, vol. 5, 2014
8. Q. Yao, Q. Liu, T. G. Dietterich, S. Todorovic, J. Lin, G. Diao, B. Yang, and J. Tang, "Segmentation of touching insects based on optical flow and NCuts", *Biosystems Engineering*, vol. 114, issue 2, pp. 67-77, 2013
9. N. Payet and S. Todorovic, "SLEDGE: Sequential labeling of image edges for boundary detection," *International Journal of Computer Vision*, vol. 104, issue 1, pp. 15-37, 2013
10. N. Payet and S. Todorovic, "Hough Forest Random Field for object recognition and segmentation," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 35, issue 5, pp. 1066-1079, 2012
11. David A. Lytle, Gonzalo Martinez-Munoz, Wei Zhang, Natalia Larios, Linda Shapiro, Robert Paasch, Andrew Moldenke, Eric N. Mortensen, Sinisa Todorovic, Thomas G. Dietterich, "Automated processing and identification of benthic invertebrate samples," *Journal of the North American Benthological Society*, vol. 29, no. 3, pp. 867-874, 2010
12. B. W Schlake, S. Todorovic, J. R. Edwards, J. M Hart, N. Ahuja, and C. P. Barkan, "Machine vision condition monitoring of heavy-axle load railcar structural underframe components," *Journal of Rail and Rapid Transit*, vol. 224, no. 5, pp. 499-511, 2010
13. M. Kagaya, W. Brendel, Q. Deng, T. Kesterson, S. Todorovic, P. Neill, and E. Zhang, "Video painting with space-time-varying style parameters," *IEEE Trans. Visualization and Computer Graphics*, vol. 17, no. 1, pp. 74 - 87, 2011
14. Y. Sun, S. Todorovic, and S. Goodison, "Local-learning based feature selection for high dimensional data analysis," *IEEE Trans. Pattern Analysis Machine Intell.*, vol. 32, no. 9, pp. 1610-1626, 2010 (The Spotlight Paper of the September 2010 issue)
15. S. Todorovic and N. Ahuja, "Unsupervised category modeling, recognition and segmentation in images," *IEEE Trans. Pattern Analysis Machine Intell.*, vol. 30, no. 12, pp. 2158-2174, 2008
16. S. Todorovic and N. Ahuja, "Region-based hierarchical image matching," *Int. J. Computer Vision*, vol. 78, no. 1, pp. 47-66, 2008
17. K. Lu, D. Wu, J. Fan, S. Todorovic, and A. Nucci, "Robust and efficient detection of DDoS attacks for large-scale internet," *Computer Networks*, vol. 51, no. 18, pp. 5036-5056, 2007
18. Y. Sun, S. Todorovic, J. Li, "Increasing the robustness of boosting algorithms within the linear programming framework," *Signal Processing*, vol. 48, no. 1-2, pp. 5-20, 2007
19. Y. Sun, Z. Liu, S. Todorovic, J. Li, "Adaptive boosting for synthetic aperture radar automatic target recognition," *IEEE Trans. Aerospace Electronic Systems*, vol. 43, issue 1, pp. 112-25, 2007
20. S. Todorovic and M. C. Nechyba, "Interpretation of complex scenes using dynamic tree-structure Bayesian networks," *Computer Vision Image Understanding*, vol. 106, issue 1, pp. 71-84, 2007

21. Y. Sun, S. Todorovic, J. Li, “Unifying multi-class AdaBoost algorithms with binary base learners under the margin framework,” *Pattern Recognition Letters*, vol. 28, issue 5, pp. 631-43, 2007
22. Y. Sun, S. Todorovic, J. Li, “Reducing the overfitting of AdaBoost by controlling its data distribution skewness,” *Int. J. Pattern Rec. Artificial Intell.*, vol. 20, no. 7, pp. 1093-116, 2006
23. S. Todorovic and M. C. Nechyba, “Dynamic trees for unsupervised segmentation and matching of image regions,” *IEEE Trans. Pattern Analysis Machine Intell.*, vol. 27, no. 11, pp. 1762-77, 2005
24. S. Todorovic and M. C. Nechyba, “A vision system for intelligent mission profiles of Micro Air Vehicles,” in *IEEE Trans. Vehicular Technology*, vol. 53, no. 6, pp. 1713-25, 2004, VTS Jack Neubauer Best Paper Award

## SELECTED REFEREED CONFERENCE PUBLICATIONS

1. T. Shu, S. Todorovic, and Song-Chun Zhu, “CERN: Confidence-energy recurrent network for group activity recognition,” in *Proc. IEEE Comp. Soc. Conf. Computer Vision Pattern Recognition (CVPR)*, Honolulu, HI, 2017. (acceptance rate %)
2. B. Mahasseni, S. Todorovic, and A. Fern, “Budget-aware semantic video segmentation,” in *Proc. IEEE Comp. Soc. Conf. Computer Vision Pattern Recognition (CVPR)*, Honolulu, HI, 2017. (acceptance rate %)
3. B. Mahasseni, M. Lam, and S. Todorovic, “Unsupervised video summarization with adversarial LSTM networks,” in *Proc. IEEE Comp. Soc. Conf. Computer Vision Pattern Recognition (CVPR)*, Honolulu, HI, 2017. (acceptance rate %)
4. A. Roy and S. Todorovic, “Combining bottom-up, top-down, and smoothness cues for weakly supervised image segmentation,” in *Proc. IEEE Comp. Soc. Conf. Computer Vision Pattern Recognition (CVPR)*, Honolulu, HI, 2017. (acceptance rate %)
5. M. Lam, B. Mahasseni, and S. Todorovic, “Fine-grained recognition as HSnet search for informative image parts,” in *Proc. IEEE Comp. Soc. Conf. Computer Vision Pattern Recognition (CVPR)*, Honolulu, HI, 2017. (oral presentation) (acceptance rate %)
6. P. Lei and S. Todorovic, “Modeling human-skeleton motion patterns using Conditional Deep Boltzmann Machine,” in *Proc. 23rd International Conference on Pattern Recognition (ICPR)*, Cancun, Mexico, 2016.
7. A. Roy, S. Todorovic, and L. Latecki, “Context-regularized learning of Fully Convolutional Networks for scene labeling,” in *Proc. 23rd International Conference on Pattern Recognition (ICPR)*, Cancun, Mexico, 2016.
8. X. Xu and S. Todorovic, “Beam Search for Learning a Deep Convolutional Neural Network of 3D Shapes,” in *Proc. 23rd International Conference on Pattern Recognition (ICPR)*, Cancun, Mexico, 2016.
9. P. Lei and S. Todorovic, “Recurrent temporal deep field for semantic video labeling,” in *Proc. 14th European Conference on Computer Vision (ECCV)*, Amsterdam, Netherlands, 2016. (acceptance rate  $415/1561 = 26.6\%$ )
10. A. Roy and S. Todorovic, “A multiscale CNN for affordance segmentation in RGB images,” in *Proc. 14th European Conference on Computer Vision (ECCV)*, Amsterdam, Netherlands, 2016. (acceptance rate  $415/1561 = 26.6\%$ )
11. A. Roy and S. Todorovic, “Monocular depth estimation using Neural Regression Forest,” in *Proc. IEEE Conf. Computer Vision Pattern Recognition (CVPR)*, Las Vegas, NV, 2016. (spotlight presentation, acceptance rate  $643/2145 = 29.9\%$ ,  $123/2145 = 9.7\%$  spotlights)
12. B. Mahasseni and S. Todorovic, “Regularizing Long Short Term Memory with 3D human-skeleton sequences for action recognition,” in *Proc. IEEE Conf. Computer Vision Pattern Recognition (CVPR)*, Las Vegas, NV, 2016. (oral presentation, acceptance rate  $643/2145 = 29.9\%$ ,  $83/2145 = 3.9\%$  orals)
13. Z. Deng, S. Todorovic, and L. Latecki, “Semantic segmentation of RGBD images with mutex constraints,” in *Proc. IEEE Int. Conf. Computer Vision (ICCV)*, Santiago, Chile, 2015 (acceptance rate  $602/2123 = 28.4\%$ )



14. T. Shu, D. Xie, B. Rothrock, S. Todorovic, and S.C. Zhu, "Joint inference of groups, events and human roles in aerial videos," in Proc. IEEE Computer Vision Pattern Recognition (CVPR), Boston, MA, 2015 (oral presentation, acceptance rate  $71/2123 = 3.3\%$ )
15. S. Kaltwang, S. Todorovic, and M. Pantic, "Latent trees for estimating intensity of facial action units," in Proc. IEEE Computer Vision Pattern Recognition (CVPR), Boston, MA, 2015 (acceptance rate  $602/2123 = 28.4\%$ )
16. M. Lam, J. Doppa, S. Todorovic, and T. Dietterich, "HC-Search: A new tool for structured prediction in computer vision," in Proc. IEEE Computer Vision Pattern Recognition (CVPR), Boston, MA, 2015 (acceptance rate  $602/2123 = 28.4\%$ )
17. S. Chen, A. Fern, and S. Todorovic, "Person count localization in videos from noisy foreground and detections," in Proc. IEEE Computer Vision Pattern Recognition (CVPR), Boston, MA, 2015 (acceptance rate  $602/2123 = 28.4\%$ )
18. M. Amer, P. Lei, and S. Todorovic, "HiRF: Hierarchical Random Field for collective activity recognition in videos," in Proc. 13th European Conference on Computer Vision (ECCV), Zurich, Switzerland, 2014 (acceptance rate  $362/1444=25.0\%$ )
19. S. Chen, A. Fern, and S. Todorovic, "Multi-object tracking via constrained sequential labeling," in Proc. IEEE Computer Vision Pattern Recognition (CVPR), Columbus, OH, 2014 (oral presentation, acceptance rate  $104/1807 = 5.75\%$ )
20. A. Roy and S. Todorovic, "Scene labeling using beam search under mutex constraints," in Proc. IEEE Computer Vision Pattern Recognition (CVPR), Columbus, OH, 2014 (oral presentation, acceptance rate  $104/1807 = 5.75\%$ )
21. S. Chen, Z. Feng, Q. Lu, B. Mahasseni, T. Fiez, A. Fern, and S. Todorovic, "Play type recognition in real-world football video," in Proc. IEEE Winter Conference on Applications of Computer Vision (WACV), Steamboat Springs CO, 2014.
22. D. Xie, S. Todorovic, and S. C. Zhu, "Inferring "dark matter" and "dark energy" from videos," in Proc. IEEE Int. Conf. Computer Vision (ICCV), Sydney, Australia, 2013, (acceptance rate  $413/1629=27.8\%$ )
23. B. Mahasseni and S. Todorovic, "Latent multitask learning for view-invariant action recognition," in Proc. IEEE Int. Conf. Computer Vision (ICCV), Sydney, Australia, 2013, (acceptance rate  $413/1629=27.8\%$ )
24. M. R. Amer, S. Todorovic, A. Fern, and S. C. Zhu, "Monte Carlo tree search for scheduling activity recognition," in Proc. IEEE Int. Conf. Computer Vision (ICCV), Sydney, Australia, 2013, (acceptance rate  $413/1629=27.8\%$ )
25. M. Lam, J. R. Doppa, X. Hu, S. Todorovic, T. G. Dietterich, A. Reft, and M. Daly, "Learning to detect basal tubules of nematocysts in SEM images," in Proc. IEEE Int. Conf. Computer Vision Workshop, Sydney, Australia, 2013
26. X. Hu, M. Lam, S. Todorovic, T. G. Dietterich, M. A. O'Leary, A. L. Cirranello, N. B. Simmons, and P. M. Velazco, "Zero-shot learning and detection of teeth in images of bat skulls", in Proc. IEEE Int. Conf. Computer Vision Workshop, Sydney, Australia, 2013
27. B. Mahasseni, S. Chen, A. Fern, and S. Todorovic, "Detecting the Moment of Snap in Real-World Football Video", in Proc. 27th AAAI Conference on Artificial Intelligence (AAAI), Bellevue, Washington, 2013 (acceptance rate  $242/975=24.8\%$ )
28. S. Todorovic, "Human activities as stochastic Kronecker graphs," in Proc. 12th European Conference on Computer Vision (ECCV), Florence, Italy, 2012 (acceptance rate  $368/1437=25.6\%$ )
29. M. Amer, D. Xie, M. Zhao, S. Todorovic, and S.-C. Zhu, "Cost-sensitive top-down/bottom-up inference for multiscale activity recognition," in Proc. 12th European Conference on Computer Vision (ECCV), Florence, Italy, 2012 (oral presentation, acceptance rate  $40/1437=2.8\%$ )
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