STAVROS TSOGKAS

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Research Interests

My research interests are in the broad areas of computer vision and machine learning, currently focusing on image quality enhancement. I am also particularly interested in shape analysis, few-shot learning, and the use of mid-level representations to bridge the gap between bottom-up and top-down processing for problems such as object detection, segmentation and grouping.

Education

Université Paris-Saclay (CentraleSupélec) Jan. 2016
Ph.D. in Mathematics and Computer Science
Thesis: Mid-level Representations for Modeling Objects
Advisor: Iasonas Kokkinos

National Technical University of Athens Sep. 2011
Diploma in Electrical and Computer Engineering
Thesis: Learning-Based Symmetry Detection in Natural Images
Advisors: Petros Maragos, Iasonas Kokkinos

Research Experience

Samsung AI Center Toronto Sep. 2018 - present
Research Scientist

University of Toronto Oct. 2019 - Jul. 2021
Adjunct Professor

Vector Institute for Artificial Intelligence Jan. 2018 - Jan. 2019
Affiliate postdoctoral fellow

University of Toronto Oct. 2016 - Oct. 2019
Postdoctoral fellow, Computer Science Department
Supervisor: Sven Dickinson

CentraleSupélec Jan. 2016 - Aug. 2016
Research engineer, CVN lab
Supervisor: Nikos Paragios
Convolutional neural networks for semantic segmentation of organs in computed tomography scans.

Oxford University (Visual Geometry Group) Aug.-Nov. 2014
Research intern
Supervisor: Andrea Vedaldi.
Combined convolutional neural networks and restricted boltzmann machines for semantic segmentation of object parts.

Peer-reviewed Conference Publications

- GIFT: Generalizable Interaction-aware Functional Tool Affordances without Labels, *RSS 2021*
  D. Turpin, L. Wang, **S. Tsogkas**, S. Dickinson, A. Garg
- Cycle-Consistent Generative Rendering for 2D-3D Modality Translation, *3DV 2020*
  T. Aumentado-Armstrong, A. Levinshtein, **S. Tsogkas**, K. Derpanis, A. Jepson
- Few-Shot Single-View 3D Reconstruction with Compositional Priors, *ECCV 2020*
  M. Michalkiewicz, S. Parisot, **S. Tsogkas**, M. Baktashmotlagh, A. Eriksson, E. Belilovsky
- Appearance Shock Grammar for Fast Medial Axis Extraction from Real Images, *CVPR 2020*
  COD. Camaro, M. Rezanejad, **S. Tsogkas**, K. Siddiqi, S. Dickinson
- Geometric Disentanglement for Generative Latent Shape Models, *ICCV 2019*
  T. Aumentado-Armstrong, **S. Tsogkas**, A. Jepson, S. Dickinson
- DeepFlux for Skeletons in the Wild, *CVPR 2019*
  Y. Wang, Y. Xu, **S. Tsogkas**, X. Bei, S. Dickinson, K. Siddiqi
- AMAT: Medial Axis Transform for Natural Images, *ICCV 2017*
  S. Tsogkas, S. Dickinson
- Prior-based Coregistration and Cosegmentation, *MICCAI 2016*
  M. Shakeri*, E. Ferrante*, **S. Tsogkas**, S. Lippe, S. Kadoury, I. Kokkinos, N. Paragios (* denotes equal contribution)
- Subcortical Brain Structure Segmentation Using FCNNs, *ISBI 2016* **(oral)**
  S. Tsogkas*, M. Shakeri*, E. Ferrante, S. Lippe, S. Kadoury, N. Paragios, I. Kokkinos (* denotes equal contribution)
- Accurate Human-Limb Segmentation in RGB-D images for Intelligent Mobility Assistance Robots
  ICCV 2015 3^{rd} Workshop on Assistive Computer Vision and Robotics
  S. Chandra, **S. Tsogkas**, I. Kokkinos
- Deformable Part Models with CNN Features,
  ECCV 2014 Parts and Attributes workshop
  P.-A. Savalle, **S. Tsogkas**, G. Papandreou and I. Kokkinos
- Superpixel-grounded Deformable Part Models, *CVPR 2014*
  E. Trulls, **S. Tsogkas**, I. Kokkinos, A. Sanfeliu, F.Moreno
- Understanding Objects in Detail with Fine-grained Attributes, *CVPR 2014*
  A. Vedaldi, S. Mahendran, **S. Tsogkas**, S. Maji, B. Girshick, J. Kannala, E. Rahtu, I. Kokkinos, M. B. Blaschko, D. Weiss, B. Taskar, K. Simonyan, N. Saphra, S. Mohamed
- Learning-Based Symmetry Detection in Natural Images, *ECCV 2012*
  S. Tsogkas, I. Kokkinos

Journal publications

- Learning Compositional Shape Priors for Few-Shot 3D Reconstruction, *(under submission to TPAMI)*
  M. Michalkiewicz, **S. Tsogkas**, S. Parisot, M. Baktashmotlagh, A. Eriksson, E. Belilovsky
- Disentangling Geometric Deformation Spaces in Generative Latent Shape Models, *(under submission to IJCV)*
  T. Aumentado-Armstrong, **S. Tsogkas**, S. Dickinson, A. Jepson

- DeepFlux for Skeleton Detection in the Wild, *IJCV 2021*
  Y. Xu, Y. Wang, **S. Tsogkas**, J. Wan, X. Bai, S. Dickinson, K. Siddiqi

Reports

- ICCV 2017 Challenge: Detecting Symmetry in the Wild (editorial),
  Detecting symmetry in the wild workshop, ICCV 2017
  Chris Funk*, Seungkyu Lee*, Martin R. Oswald*, **Stavros Tsogkas***, Wei Shen, Andrea Cohen, Sven Dickinson, Yanxi Liu (* denotes equal contribution)
- Deep Learning for Semantic Part Segmentation with High-Level Guidance,
  arXiv report
  S. Tsogkas, I. Kokkinos, G. Papandreou, A. Vedaldi

Teaching Experience

Teaching assistant (CentraleSupélec) 2011-2015

- Signal Processing (undegrad course).
- Computer Vision (undegrad course).
- Machine Learning for Computer Vision (MVA master course)

Invited lecturer (CentraleSupélec/ESSEC) 2016
MSc in Data Science and Business Analytics
Seminar on deep learning theory and tools.

Professional Activities

Reviewer, IEEE TPAMI, IJCV, CVIU, IMAVIS, IEEE ICCV, IEEE CVPR, ECCV, ICVGIP, BMVC, Morgan & Claypool Synthesis lectures on Computer Vision
Co-organizer of the "Detecting Symmetry in the Wild" workshop,
in conjunction with ICCV 2017, Venice, Italy.
Treasurer, IEEE NTUA Student Branch 2010-2011
Chairman, IEEE NTUA Student Branch 2011-2012
Student member IEEE 2012-2015

Programming Skills

MATLAB, Python, Lua, C++, Latex, Caffe, MatConvNet, Torch.

Distinctions

Outstanding reviewer award (ECCV 2016)

Citizenship

Greek

Languages

English (fluent), French (proficient), Greek (native).