Nikolaos Karianakis

Contact Information
E-mail: nikarian@microsoft.com
Mobile: (+1) 310 562 7962
Web: https://karianakis.github.io/

Work Address:
Microsoft Studio C
3640 150th Ave NE, Redmond, WA 98052

Date of Birth July 15^{th}, 1986

Nationality & Citizenship Greek

US Lawful Permanent Resident:
Dec 2019 - present

Education

University of California, Los Angeles, USA
Master's [2011-2014] **& Ph.D.** [2011-2017] **in Computer Science**

- Area: Computer Vision & Machine Learning.
- Focus: Deep Learning. Advisor: Prof. Stefano Soatto.
- Dissertation: Sampling Algorithms to Handle Nuisances in Large-Scale Recognition.

National Technical University of Athens, Greece
Diploma in Electrical & Computer Engineering [2004-2011]

- Major: Computer Science & Computer Engineering.
- Minors: Electronics, Systems (Signals / Control / Robotics).
- Thesis: Digital Restoration of Prehistoric Theran Wall-paintings.
  Area: Computer Vision. Advisor: Prof. Petros Maragos.

Experience

Principal Research Manager *(June 2021 - present)* **Microsoft, Redmond**
Principal Researcher *(Sep 2020 - May 2021)* **Mixed Reality**
Senior Researcher *(July 2017 - Aug 2020)* **AI**

- Deep Learning, AutoML, Object Detection in Aerial Imaging. Manager: Chris Edmonds.

Research Intern **Microsoft Research, Redmond**
June - September 2016 *Computer Vision & Machine Learning*

- Person re-identification. Reinforcement learning. Mentor: Zicheng Liu.

R & D Engineering Intern **Sony, Tokyo**
June - September 2015 *Intelligent System Technology Department*

- Algorithm development, framework implementation and simulation, real-environment testing with iCart mini. Q reinforcement learning and deep neural networks to learn autonomous navigation. Mentor: Yusuke Watanabe.

Research Intern **NASA's Jet Propulsion Laboratory, Pasadena**
July - September 2014 *Computer Vision & Machine Learning*

- Invented an algorithm for generic object detection, which builds on top of ML boosting and deep convolutional features. Mentor: Thomas Fuchs.

Research Intern **Peking University, Beijing**
July - September 2013 *Institute of Digital Media, Computer Science*

- RBMs, occlusion detection, depth estimation. Advisor: Yizhou Wang.

Graduate Research Assistant **University of California, Los Angeles**
September 2011 - June 2017 *Computer Vision & Machine Learning*

- Learning and engineering representations and deep architectures for large-scale recognition and wide-baseline correspondence. Advisor: Stefano Soatto.

Research Assistant **National Technical University of Athens**
November 2010 - September 2011 *Electrical & Computer Engineering*
- Image segmentation, TV inpainting, image stitching. Advisor: Petros Maragos.

Selected Publications

Gemel: Model Merging for Memory-Efficient, Real-Time Video Analytics at the Edge.
A. Padmanabhan, N. Agarwal, A. Iyer, G. Ananthanarayanan, Y. Shu, N. Karianakis, G. H. Xu and R. Netravali.
*Symposium on Networked Systems Design and Implementation (**NSDI**)*, 2023.

Ekya: Continuous Learning of Video Analytics Models on Edge Compute Servers.
R. Bhardwaj, Z. Xia, G. Ananthanarayanan, J. Jiang, Y. Shu, N. Karianakis, K. Hsieh, V. Bahl and I. Stoica.
*Symposium on Networked Systems Design and Implementation (**NSDI**)*, 2022.

SC-UDA: Style and Content Gaps aware Unsupervised Domain Adaptation for Object Detection. F. Yu, D. Wang, Y. Chen, N. Karianakis, T. Shen, P. Yu, D. Lymberopoulos, S. Lu, W. Shi and X. Chen.
*Winter Conference on Applications of Computer Vision (**WACV**)*, 2022.

Hyper-STAR: Task-Aware Hyperparameters for Deep Networks. G. Mittal, C. Liu, N. Karianakis, V. Fragoso, M. Chen and Y. Fu.
*In IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2020.

BLT: Balancing Long-Tailed Datasets with Adversarially-Perturbed Images.
J. Kozerawski, V. Fragoso, N. Karianakis, G. Mittal, M. Turk and M. Chen.
*In Asian Conference on Computer Vision (**ACCV**)*, 2020.

Reinforced Temporal Attention and Split-Rate Transfer for Depth-Based Person Re-Identification.
N. Karianakis, Z. Liu, Y. Chen and S. Soatto.
*In European Conference on Computer Vision (**ECCV**)*, 2018.

An Empirical Evaluation of Current Convolutional Architectures' Ability to Manage Nuisance Location and Scale Variability. N. Karianakis, J. Dong and S. Soatto.
*In IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2016.

Multiview Feature Engineering and Learning.
J. Dong, N. Karianakis, D. Davis, J. Hernandez, J. Balzer and S. Soatto.
*In IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2015.

An integrated System for Digital Restoration of Prehistoric Theran Wall Paintings.
N. Karianakis and P. Maragos.
*In IEEE International Conference on Digital Signal Processing (**DSP**)*, 2013.

Expertise

Deep Learning, Computer Vision, Machine Learning, LLM, Algorithms.

Technical Skills

C/C++, Python, Lua, Matlab, ROS, Haskell, ML, Prolog, Assembly x86/AVR, CUDA, LaTeX, Caffe, Torch, MatConvNet, PyTorch, TensorFlow, Theano.

Teaching Experience

Graduate Teaching Fellow University of California, Los Angeles
- Computer Science I (CS31; Fall 2012, Fall 2013, Winter 2014, Fall 2014)
- Computer Science II (CS32; Winter 2013, Spring 2013, Winter 2015)
- Computer Organization (CS33; Spring 2014)
- Machine Learning Algorithms (CS260; Fall 2015)
  Nominated by the CS department for Distinguished Teaching award