Michael Iliadis

Senior Research Scientist, Clarifai
U.S. Permanent Resident
+1 (408) 886-0912

miliad@u.northwestern.edu
http://miliadis.github.io/
github.com/miliadis

Research Expertise

Computer Vision, Image Processing, Machine Learning, Video Reconstruction, Face Recognition, Face Detection, Sparse Coding

Education

Northwestern University, Evanston, IL USA 09/2011 - 06/2016
Ph.D., Electrical Engineering & Computer Science

- Thesis: Sparse Representation and Deep Learning for Image and Video Reconstruction
- Advisor: Aggelos K. Katsaggelos

University of Bath, Bath, UK 09/2008 - 09/2009
M.S., Computer Science

University of Piraeus, Piraeus, Greece 09/2003 - 06/2008
B.S., Digital Systems

Employment

Clarifai, San Francisco, CA USA 01/2020 - Present
Senior Research Scientist

- Currently working on a face detection/landmarks model based on RetinaFace
  - Train on a dataset that consists of 250K images with 1M bboxes and 0.5M face landmarks
  - Enable distributed multi-node training on Kubeflow for faster experimentation/iteration
- Built a face recognition model for verification and search
  - Developed face embeddings model based on ArcFace using 8M face images
  - Evaluated model on several face verification test datasets
  - Model improved on the true positive rate by about 5% overall and on extreme poses specifically by around 60%
- Designed a new face demographics predictor with a focus on reducing bias across classes
  - Collected face demographics dataset with age, gender and ethnicity labels
  - Evaluated neural network across different test datasets to measure bias on different groups
- Developed a movie scene detector for a major media company
  - Used MinimumCut algorithm to find scene boundaries
  - Evaluated features from different state-of-the-art neural networks

Vidado.ai, Oakland, CA USA 08/2017 - 01/2020
Senior Research Engineer

- Developed a deep learning system for table and key-value detection in scanned documents
- Developed a large-scale image classification system for noisy scanned form documents using one-shot learning (filed a patent)
- Implemented a robust near-duplicate document retrieval system (filed a patent)

Sony US Research Center, San Jose, CA USA 08/2016 - 08/2017
Research Scientist

- Researched the semantic segmentation problem for Sony mobility products
- Designed an end-to-end FCN-CRF network for boundary refinement

- Improved semantic segmentation run-time by applying knowledge distillation loss

TCL Research America, San Jose, CA USA 2013 - 2014
Research Intern

- Researched and implemented a novel sparsity method for face recognition
- Designed compact features for a fast video retrieval system
- Manager: Haohong Wang, published 2 conference papers and 4 patents

Selected Publications

Google scholar: scholar.google.com/citations?user=eitRqV0AAAAJ&hl=en

Michael Iliadis, Leonidas Spinoulas and Aggelos K. Katsaggelos. DeepBinaryMask: Learning a Binary Mask for Video Compressive Sensing. *Elsevier Digital Signal Processing, January 2020.*

Alice Lucas, **Michael Iliadis**, Rafael Molina and Aggelos K. Katsaggelos. Using Deep Neural Networks for Inverse Problems in Imaging. *IEEE Signal Processing Magazine (SPM), January 2018.*

Michael Iliadis, Leonidas Spinoulas and Aggelos K. Katsaggelos. Deep Fully-Connected Networks for Video Compressive Sensing. *Elsevier Digital Signal Processing, January 2018.*

Michael Iliadis, Haohong Wang, Rafael Molina and Aggelos K. Katsaggelos. Robust and Low-Rank Representation for Fast Face Identification with Occlusions. *IEEE Transactions on Image Processing (TIP), May 2017.*

Michael Iliadis, Leonidas Spinoulas, Albert S. Berahas, Haohong Wang and Aggelos K. Katsaggelos. Multi-Model Robust Error Correction for Face Recognition. *IEEE International Conference on Image Processing (ICIP)*, Phoenix, USA, September 2016.

Michael Iliadis, Jeremy Watt, Leonidas Spinoulas and Aggelos K. Katsaggelos. Video Compressive Sensing using Multiple Measurement Vectors. *IEEE International Conference on Image Processing (ICIP)*, Melbourne, Australia, September 2013. **Top 10% Paper Recognition**

Teaching Experience

Northwestern University

TA of Ian D. Horswill, Data Structures and Data Management, Spring '15 and '16
TA of Michael Honig, Engineering Analysis I, Fall '15

Computer Skills

- Programming Languages: Python, C++
- Machine Learning / Computer Vision: Tensorflow, PyTorch, OpenCV
- DevOps: AWS, Docker, Kubernetes

Mentorship

- Insight Fellows Program: Mentored a fellow for data scientists for the fall of 2020

Professional Service

Reviewer: International Journal of Computer Vision, IEEE Transactions on Multimedia, IEEE Transactions on Image Processing, IEEE Access, Elsevier Digital Signal Processing, EURASIP Journal on Advances in Signal Processing