Nikiforos Pittaras

<div align="right">Curriculum Vitae</div>

Personal Information

📅 February 27th, 1988.

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Work experience

▷ Research associate. "BigDataEurope" project, at the Institute of Informatics and Telecommunications (IIT)[1] of the National Center for Scientific Research "Demokritos" (NCSRD), Athens, Greece (late June 2016 - present). Lead developer, technical assistant and researcher to a multitude of IIT projects, focusing on text mining and event detection, including but not limited to:

- Event detection pipeline development, maintenance, extension, scaling, optimization and deployment. News and social media mining, clustering and processing.
- Software virtualization containers design, deployment and maintenance.
- RESTful API frontend/backend development, website deployment and migration, VM setup and deployment.
- Personalization systems engineering, documentation and deployment.
- Lecture group planning, administration, organization and mailing list management of the Content Analysis and Knowledge Technologies (CAKT) research group [2].

▷ Research associate. "ForgetIT" project, at the Information Technologies Institute (ITI)[3], of the National Center for Research and Technology, Hellas (CERTH). Thermi, Greece (April 2015 - September 2015). Lead developer, researcher and technical assistant, focusing on video concept detection, specializing in deep learning with convolutional neural networks. Duties include:

- Transfer learning, hyper-parameter and network topology optimization.
- Lead developer to a DCNN-based real time concept detection system, including design, development, maintenance, expansion and optimization.

▷ Research associate. "Linked TV: Television linked to the web" project, at the ITI of CERTH. Thermi, Greece (February 2014 - March 2015). Lead developer, researcher and technical assistant, focusing on video concept detection and visual feature representation, including but not limited to:

- Visual descriptor testing and optimization. Software development for large scale feature extraction, storage and processing. Binary visual descriptors, colour extensions, normalization and clustering schemes.
- Concept detection pipeline design, time/space optimization. System maintenance, expansion, design and modular development from scratch (feature extraction, processing, classification, visualization). Fully automated large-scale experiment planning, execution and evaluation.
- Deep Learning with deep convolutional neural networks. Training and fine-tuning methodologies, network topology and architecture for fine-tuning, DCNNs as feature generators.

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[1] https://www.iit.demokritos.gr/
[2] https://www.iit.demokritos.gr/group/cakt
[3] http://www.iti.gr/iti/index.html

- ▷ Various freelance jobs, including tutoring on physics and mathematics, undertaking computer science university projects assignments, Greek to / from English translations, automobile dealership secretary, speedboat operator and others. Naxos, Athens, Ioannina, Thessalonika (2000-2013).

Education

- ▷ PhD in Machine Learning, Dpt. of Informatics and Telecommunications (DIT)[4] of the National and Kapodistrian University of Athens (NKUA) and the IIT of NCSRD. Supervised by P. Stamatopoulos (DIT) and V. Karkaletsis,(IIT). Athens, Greece (07/2017 - present).

- ▷ MSc. in Computer Science, specializing in Signal & Information Processing and Learning, DIT, NKUA, Greece (10/2015 - present).

  Brief summary of graduate course projects:

  - ◇ Thesis: Multimodal video /image classification and description using deep neural networks. Supervised by T. Giannakopoulos and S. Perantonis (*in progress*).
  - – Semantic data construction, processing and querying. Geospatial and temporal data handling, ontology engineering. *(Knowledge Technologies course)*
  - – Design, development, implementation and optimization of voice user interfaces. *(Voice Technologies course)*
  - – Implementation of RBF, Bayes and Perceptron networks and classifiers. Classifier analysis, tuning and large scale experiments in Weka and Matlab. Image deblurring via the LS denoiser. Implementation of the RLS and Robbins-Monroe algorithms. Study and presentation of a submission in the 30th AAAI Conference. *(Pattern Recognition, Machine Learning, Advanced AI courses)*
  - – Implementation of a variety of visual feature extractors, statistical analysers and classification algorithms in Matlab. Design, implementation in C++, documentation and IEEE-style paper authorship on the Stauffer-Grimson background subtraction method. *(Medical image analysis and image processing course)*
  - – Bibliographical research study on microcontroller and microcomputer (arduino, raspberryPI and others) platforms and applications. *(Real time systems course)*
  - – Implementation of design patters and multi-threaded applications. Use of aspect-oriented programming approaches, C++ memory visualization programs. GC and memory management performance tests on Java and C++. Study and presentation of an OOPSLA'16 submission. *(Advanced programming techniques course)*

- ▷ Bsc. in Computer Science, Dpt. of Computer Science and Engineering[5], University of Ioannina (UoI), Greece (10/2013). (8 semester undergraduate program, Grade 7.08)

  Brief summary of undergraduate course projects:

  - ◇ Thesis: Image registration using unified particle swarm optimization. Supervised by C. Nikou and K. Parsopoulos. (Grade 10.0)
  - – Implementation of classifiers (including SVMs, Bayesians, K-means and NN), single and multi-layered perceptrons. Implementation of and various heuristic and global optimization search algorithms.
    (*Pattern recognition, computational intelligence, AI courses*)
  - – Implementation, design and documentation of graphical class analyser tools, a full compiler for a toy language, relational and ER-modeled databases.
    (*Software engineering, OO programming, compilers, database systems courses*)

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[4]http://di.uoa.gr/
[5]http://cs.uoi.gr/en/index.php?menu=m1

- Implementation of image processing tools, video codecs, video restoration and compression scripts, 2D and 3D games in openGL and X11, as well as drawing applications. (*Digital image processing, multimedia, computer graphics courses*)
- Design, simulation and analysis of digital and analog circuits, up to a very large integration scale. Simulation of microprocessors and assembly programming. (*Digital design, microelectronics, integrated digital circuits, VLSI systems, computer architecture courses*)

▷ Seminars & workshops:

- Weekly academic seminars, lectures and presentations held or hosted by the CAKT group (IIT, NCSRD, July 2016 - present).
- "Object-centric machine learning", seminar with L. Guibas from Stanford University (DIT, NKUA, May 2016).
- "A Value-Based Approach to Hardware Acceleration of Deep Learning", seminar with A. Moshovos from University of Toronto (DIT, NKUA, May 2016).
- "Image processing with MATLAB", seminar with Mentor Hellas corporation (DIT, NKUA, February 2016).
- "CretaMASSS-2013 / HAISS'13-Agents", summer school on multi-agent systems and artificial intelligence (Technical University of Crete, summer 2013).

Publications

▷ Journal publications

1. F. Markatopoulou, V. Mezaris, N. Pittaras, I. Patras, "Local Features and a Two-Layer Stacking Architecture for Semantic Concept Detection in Video", IEEE Trans. on Emerging Topics in Computing, March 2015 (ieee) (pdf).

▷ Conference publications

1. Auer, Soeren, et al. "The BigDataEurope Platform - Supporting the Variety Dimension of Big Data", International Conference on Web Engineering. Springer, Cham, 2017 (springer).
2. N.Pittaras, F.Markatopoulou, V.Mezaris, I.Patras, "Comparison of Fine-tuning and Extension Strategies for Deep Convolutional Neural Networks", 23rd International Conference on Multimedia Modeling, Reykjavik, Iceland, Jan 2017 (springer) (pdf).
3. F. Markatopoulou, A. Ioannidou, C. Tzelepis, T. Mironidis, D. Galanopoulos, S. Arestis-Chartampilas, N. Pittaras, K. Avgerinakis, N. Gkalelis, A. Moumtzidou, S. Vrochidis, V. Mezaris, I. Kompatsiaris, I. Patras, "ITI-CERTH participation to TRECVID 2015", Proc. TRECVID 2015 Workshop, Gaithersburg, MD, USA, Nov. 2015 (nist)(pdf).
4. G. Kalpakis, T. Tsikrika, F. Markatopoulou, N. Pittaras, S. Vrochidis, V. Mezaris, I. Patras, I. Kompatsiaris, "Concept Detection on Multimedia Web Resources about Home Made Explosives", Proc. Int. Workshop on Multimedia Forensics and Security (MFSec), held in conjunction with the 10th Int. Conf. on Availability, Reliability and Security (ARES), Toulouse, France, Aug. 2015 (ieee) (pdf).
5. F. Markatopoulou, N. Pittaras, O. Papadopoulou, V. Mezaris, I. Patras, "A Study on the Use of a Binary Local Descriptor and Color Extensions of Local Descriptors for Video Concept Detection", Proc. 21st Int. Conf. on MultiMedia Modeling (MMM'15), Sydney, Australia, January 2015 (springer) (pdf).
6. N. Gkalelis, F. Markatopoulou, A. Moumtzidou, D. Galanopoulos, K. Avgerinakis, N. Pittaras, S. Vrochidis, V. Mezaris, I. Kompatsiaris, I. Patras, "ITI-CERTH participation to TRECVID 2014", Proc. TRECVID 2014 Workshop, Orlando, FL, USA, November 2014 (nist) (pdf).

▷ Book chapters

1. N. Pittaras, S. Montanelli, G. Giannakopoulos, A. Ferrara, V. Karkaletsis, "Crowd-sourcing in Single-document Summary Evaluation: the Argo Way", Automatic Text Extraction, World Scientific Publishers, (to appear - accepted with changes).

Distinctions

▷ S. Niarchos Industrial PhD. scholarship recipient (2017).

Teaching

▷ Course Assistant

   – Data Structures and Programming Techniques, at DIT, NKUA, under M. Koubarakis (Spring semesters 2016, 2017).

Skills and training

▷ Proficient with:

   – *programming languages:* C, C++, Java, Matlab, python, Octave, bash

   – *APIs & libraries:* tensorflow, (num/sci)py, caffe, android, matconvnet, libsvm, liblinear, openGL, glut, openCV, SDL2

   – *IDEs & SDKs:* NetBeans, Code::Blocks, qtCreator, protege, Visual Studio 2010 / 2013, intelliJ IDEA, CLion, PyCharm

   – *big data & databases:* Apache Cassandra, Apache SPARK, MYSQL

   – *semantic web:* RDF, (geo/st) SPARQL, OWL

   – *other:* git, vim, emacs, LaTeX, zsh, docker, sublime-text

▷ Familiar with:

   – *programming languages:* scala, voiceXML

   – *web :* HTML, CSS, php, javascript, jquery, ajax, composer, laravel, apache (http server/tomcat), glassfish, liferay, hugo

   – *APIs & libraries:* X, THREE.js, CUDA, Weka

   – *IDEs & SDKs:* Eclipse, DevC++, Godot, Android SDK, Unity 3D, Blender, CSLU RAD, IBM Websphere Voice Toolkit

   – *circuit design and simulation:* VHDL, Altera Quartus II, Capture CIS, Pspice

   – *databases:* mongoDB

   – *other:* QGIS, gdb

Language skills

▷ Greek (Mother tongue).

▷ English (Fluent: Cambridge FCE, CAE and CPE (grades A, A and C respectively)).

▷ German, French (Basic).

Miscellaneous skills

▷ Licensed to drive cars and speedboats.

▷ Completed lifeguard theoretical and practical training at PA.S.X.NA. lifeguard school.

Hobbies and interests

▷ Long distance running and cycling, swimming.

▷ Musical instruments (guitar, piano, some bass and ocarina), singing, song writing.

▷ Number theory, astronomy, modern physics, indie game development.