Nikiforos Pittaras

Curriculum Vitae

Personal Information

- ▷ Date of birth: February 27th, 1988.
- ▷ Address: Liakataion 33, Athens, Greece
- ▷ Email: pittarasnikif@gmail.com
- ▷ Phone: +30 694 886 1235

Work experience

- ▷ Research associate. "BigDataEurope" project, at the National Center for Scientific Research "Demokritos", Athens, Greece (late June 2016 - present). Research focus is text mining and event detection, including but not limted to:
  - Event detection pipeline development, maintenance, extension, scaling, optimization and deployment.
  - Software containers design, deployment and maintenance.
  - RESTful frontend/backend development, website deployment and migration, VM setup and deployment.
  - Lecture group planning and mailing list management.
- ▷ Research associate. "ForgetIT" project, at the Information Technologies Institute (ITI), of the National Center for Research and Technology, Hellas (CERTH)[1]. Thermi, Greece (April 2015 - September 2015). Research focuses on video concept detection, mainly on Deep Learning with deep convolutional neural networks, including but not limited to:
  - Transfer learning, hyper-parameter and layer topology optimization.
  - DCNN-based real time concept detection system design, development, maintenance, expansion and optimization.
- ▷ Research associate. "Linked TV: Television linked to the web" project, at the Information Technologies Institute (ITI), of the National Center for Research and Technology, Hellas (CERTH). Thermi, Greece (February 2014 - March 2015). Research focuses on video concept detection, including but not limited to:
  - Feature representation: large scale 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: Time and 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.
- ▷ Private tutoring on physics and mathematics (2012,2015 - present).
- ▷ Freelance homework helper and translator. Undertaking and completion of university level homework projects in computer science. Translation from English to Greek and vice versa of various texts, including academic course material and subtitling. (2010 - present).
- ▷ Secretary at Renault automobile dealership, speedboat operator, Naxos, Cyclades, Greece (family businesses, 2000 - 2005, 2012 - 2014).

[1] http://www.iti.gr/iti/index.html

Education

▷ Msc. in Computer Science, specializing in Signal & Information Processing and Learning, Dpt. of Informatics and Telecommunications[2], National and Kapodistrian University of Athens, Greece (10/2015 - present).

Brief summary of graduate course projects:

- 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, Bayes and NN classifiers. Classifier analysis and large scale experiments in Weka and Matlab. *(Pattern Recognition course)*
- 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)*
- Exploits design, development and execution, including buffer overflows, MITM & openssl attacks, password cracking with rainbow tables. *(Computer systems security 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 paper submission. *(Advanced programming techniques course)*
- Maximum graph clique solution via constraint programming. Lecture presentation on a selected paper of the 30th AAAI Conference on Artificial Intelligence. *(Advanced artificial intelligence course)*
- Image deblurring via the LS denoiser. Implementation of the RLS and Robbins-Monroe algorithm. *(Machine learning course)*

▷ Bsc. in Computer Science, Dpt. of Computer Science and Engineering[3], University of Ioannina, Greece (10/2013). (8 semester undergraduate program, Grade 7.08)

Brief summary of undergraduate course projects:

- Bsc Thesis: Image registration using unified particle swarm optimization. (Supervised by Christophoros Nikou. Grade 10.0)

  (fields: computer vision, global optimization, swarm intelligence).
- 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*)
- 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*)

[2] http://di.uoa.gr/
[3] http://cs.uoi.gr/

– 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:

– "A Value-Based Approach to Hardware Acceleration of Deep Learning", a seminar with A. Moshovos (University of Toronto) (May 2016).

- "Image processing with MATLAB", a Mentor Hellas seminar, at the Computer Center of the National and Kapodistrian University of Athens, Greece (February 2016).

- "CretaMASSS-2013 / HAISS'13-Agents" summer school at the Technical University of Crete, on the topic of multi-agent systems and artificial intelligence (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.

▷ Conference publications

1. 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 (MMM), Reykjavik, Iceland, Jan 2017.
2. 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.
3. 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.
4. 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.
5. 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.

Teaching

▷ Course Assistant

– Data Structures and Programming Techniques
(@ Dept. of Informatics & Telecommunications, University of Athens, Spring 2016)

Skills and training

- ▷ Proficient with:
  - *programming languages:* C, C++, Java, Matlab, python, Octave, bash
  - *APIs & libraries:* tensorflow, numpy, caffe, 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:* cassandra, apache spark, mysql
  - *semantic web:* RDF, (geo/st) SPARQL, OWL
  - *other:* git, LaTeX, zsh, gdb, docker & dockerfile programming, sublime
- ▷ Familiarity with:
  - *programming languages:* scala, voiceXML
  - *web :* HTML, CSS, php, javascript, jquery, ajax, composer, laravel, apache http server, apache tomcat, glassfish
  - *APIs & libraries:* X, THREE.js, CUDA, Weka
  - *IDEs &SDKs:* Eclipse, DevC++, Unity 3D, Blender, CSLU RAD, IBM Websphere Voice Toolkit
  - *circuit design and simulation:* VHDL, Altera Quartus II, Capture CIS, Pspice
  - *databases:* mongoDB
  - *other:* ns, QGIS

Language skills

- ▷ Greek (Mother tongue)
- ▷ English (Fluent, owner of Cambridge FCE (Grade: A), CAE (Grade: A), CPE (Grade: C) certificates)
- ▷ German (Basic)
- ▷ French (Beginner)

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.