

Summary of academic projects during under/postgraduate studies.

- **PhD projects:**

- ◊ Thesis: *Beyond Deep Learning: Enriching Data Representations for Machine Learning Tasks*. Supervised by P. Stamatopoulos, V. Karkaletsis, M. Koubarakis.
- Hate Speech Detection framework: Research findings during the PhD were realized into an industry-grade Hate Speech Detection solution, supporting training, testing and evaluation, hyper-parameter tuning, model deployment and tracking.

- **Selected MSc course projects:**

- ◊ Thesis: *Multimodal video classification using deep neural networks*. Supervised by T. Giannakopoulos and S. Perantonis. Grade 10.0 / 10.0.
- Semantic data and geo/spatiotemporal data handling, ontology engineering. Design, development, implementation and optimization of voice user interfaces.
(*Knowledge Technologies, Voice Technologies*)
- Implementation, tuning and large-scale experiments with multiple classification models (e.g. RBF, Bayesian and neural nets) in Weka and Matlab. Implementation of the RLS, Robbins-Monroe and LS denoising algorithms. Study and presentation of an AAAI-2016 conference submission.
(*Pattern Recognition, Machine Learning, Advanced Artificial Intelligence*)
- Implementation of visual feature extractors, statistical analysers and classification algorithms. Design, implementation and documentation on the Stauffer-Grimson background subtraction method.
(*Medical Image Analysis, Image Processing*)
- Bibliographical research study on microcontroller and microcomputer platforms.
(*Real Time Systems*)
- Implementation of OO design patterns, multi-threading, aspect-oriented approaches and memory visualization. GC and memory management performance tests on Java and C++. Study and presentation of an OOPSLA'16 submission.
(*Advanced Programming Techniques*)

- **Selected BSc course projects:**

- ◊ Thesis: *Image registration using unified particle swarm optimization*. Supervised by C. Nikou, K. Parsopoulos. Grade 10.0. / 10.0
- Implementation of different classifiers (e.g. SVM, Bayes, K-means, MLPs) and various search algorithms employing heuristic-based or global optimization.
(*Pattern recognition, Computational Intelligence, Artificial Intelligence*)
- Implementation, design and documentation of graphical class analyser tools, a full compiler for a toy language, relational and ER-modeled databases.
(*Software engineering, Object-Oriented Programming, Compilers, Database Systems*)
- Implementation of image processing tools, video codecs, video restoration and compression scripts, 2D and 3D games in OpenGL and X11, drawing GUI applications.
(*Digital Image Processing, Multimedia, Computer Graphics*)
- 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*)