



Nikiforos Pittaras, PhD

Machine Learning researcher / engineer

Machine Learning, AI and Data Science enthusiast, focused on research and development of deep learning methods for text & multimedia, and investigations into AI safety and alignment

<https://npit.github.io>

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</> python, java, matlab, C++  
 sklearn, pytorch, tensorflow  
 mysql, postgres, cassandra  
>_ linux, bash, docker, git
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EDUCATION



- **PhD in Machine Learning:** (University of Athens & NCSR Demokritos) 2017-2021
4-year doctorate, awarded with an [SNF Industrial Scholarship](#), Grade 'Excellent'.
Specialized in augmenting Deep Neural Representations with external information for ML tasks.
Developed a Hate Speech Detection system from research findings for industry deployment.
Thesis: Beyond Deep Learning: Enriching Data Representations for Machine Learning Tasks
> `python, tensorflow, keras, pytorch, DNN, nltk, Wordnet, ray, mlflow, restx`
- **MSc in Signal/Information Processing & Learning:** (University of Athens) 2015-2018
2-year Master's degree, focused on Signal Processing and Machine Learning. Grade 8.78.
Specialized in Machine Learning, Signal and Multimedia Analysis and Processing, Ontology Engineering
Thesis: Multimodal video classification with deep neural networks ([rg](#))
> courses: `{matlab, java, C++}`, thesis: `{python, tensorflow, keras, DCNN, LSTM}`
- **BSc in Computer Science:** (University of Ioannina) 2005-2013
4-year Bachelor's degree (Ptychion), with a focus on Machine Learning, AI and VLSI. Grade 7.08.
Specialized in Machine Learning and Artificial Intelligence, Multimedia Processing, Hardware Design
Thesis: Image registration using unified particle swarm optimization ([pdf](#))
> courses: `{C, C++, java, matlab, opengl, vhdl}`, thesis: `{matlab, UPSO}`

PROFESSIONAL EXPERIENCE



- **Senior ML Engineer:** [bunny.net](#) - Remote / Athens, Greece January 2023 - present
 - **ML Engineering:** Design and implementation of ML and RL methods for CDN optimization.
> `python, torch, gym, stable-baselines3, sklearn, influxdb, grafana`
- **ML Research Scientist:** [RAIC/AIID](#) - Remote / Athens, Greece (part-time contract) July 2022 - present
 - **ML Taxonomy Engineering:** Technical AI taxonomy development for system goals, technologies and failures.
 - **Academic Writing:** Scientific publication authorship for work and result dissemination and presentation.
- **Postdoc ML Research Engineer:** [IIT-NCSR/ICS-FORTH](#) - Athens, Greece Nov 2021 - April 2023
 - **R&D / Text ML:** Research, ML and backend engineering on [argumentation mining](#) on articles for the Debatelab project. [Active learning](#), [clustering](#), [topic modelling](#) and [token / text classification](#) with [transformer models](#).
> `python, pytorch, transformers, BERT, flair, elasticsearch, fastapi, docker`
- **Senior ML Engineer:** [LANGaware](#) - Athens, Greece June 2021 - January 2023
 - **ML Engineering:** Pipeline development and maintenance for multimodal neurodegenerative disease prediction. Design and implementation of ETL and classification procedures, interpretability analysis.
 - **ML Prototyping:** Work with the Data Science team to implement new solutions, experiments and prototypes.
 - **Academic & Technical Writing:** Authorship of scientific papers, proposals and reports on ML work.
> `python, sklearn, RF, numpy, spacy, nltk, librosa, gcp`
- **AI Alignment Researcher:** Independent / [EA-LTFF](#) - Athens, Greece June - October 2022
 - **R&D on RL:** Reinforcement Learning environment design and engineering. [Agent communication](#) and [betrayal pattern analysis](#) for cooperative tasks, empirical environment validation with experiments.
 - **Academic Writing:** Publication authorship, experiment planning, execution and analysis.

> python, pytorch, gym, stable-baselines3, pettingzoo, docker, wandb, AWS

- **Teaching Assistant:** [Center for AI Safety - MLSS program](#) - Remote / Athens, Greece June-August 2022
 - **TA:** Theoretical / technical support on advanced Machine Learning, Deep Learning, [AI Safety and Alignment](#).
 - > python, pytorch, gradescope
- **Lead ML Engineer:** [SciFY](#)- Athens, Greece (part-time contract) Nov. 2020-August 2021
 - **ML Engineering:** Development, maintenance, evaluation of text classification pipelines in the legal domain.
 - > python, sklearn, numpy, nltk, pytorch, transformers, BERT, flask
- **Research Associate/ ML & Backend Engineer:** [ILSP-ATHENA](#) - Athens, Greece Feb.-Dec. 2019
 - **R&D on Text ML:** Lead developer on [multimodal topic modelling](#) on scientific publications for the D4I research project. Pipeline maintenance and extension, administration and deployment.
 - **Result analysis and reporting:** Meta-analysis, data aggregation, visualization and presentation; indicator engineering and impact assessment. Project report compilation and authoring.
 - **System / backend administration:** VM / system management and setup, database extension / optimization.
 - > java, mallet, LDA, spring, postgres, python, sklearn, django, flask
- **Research Associate / Lead ML Engineer:** [IIT-NCSR](#)D - Athens, Greece June 2016 - Sep. 2021
 - **R&D on Text ML:** Text & social media big data mining for event detection, clustering, summarization, recommendation, entity resolution, semantic search, personalization, for the BDE and Storybot research projects.
 - **System administration & engineering:** VM and software virtualization containers design, deployment and maintenance. RESTful API frontend/backend development, website deployment and migration.
 - **Academic Writing:** Publication authorship, experiment planning, execution, automation and analysis.
 - **Community management:** Organization of the internal REPR and CAKT research groups
 - > java, docker, cassandra, spark, bash, jax-rs, pyinsect, NGG, glassfish
- **Research Associate / Lead ML Engineer:** [ITI-CERTH](#) - Thessaloniki, Greece Feb. 2014 - Sep. 2015
 - **R&D on CV:** Visual descriptor engineering for the LinkedTV and ForgetIT projects; Lead development, design and CPU/GPU optimization of video [concept detection](#), [image retrieval](#), [search](#) and [visualization](#) pipelines.
 - **R&D on Deep CV:** Research on deep learning methods for video concept detection with DCNNs. Lead design, development and maintenance of retrieval / search DCNN pipelines for real-time execution.
 - **Academic Writing:** Publication authorship, experiment planning, execution, automation and analysis.
 - > C++, matlab, opencv, libsvm/linear, caffee, matconvnet, DCNN, openmp, cuda

ACADEMIC / SCIENTIFIC ACTIVITIES



- **Teaching / Supervision:**
 - Co-supervision of BSc / MSc theses and Internships related to Machine Learning, NCSR D, 2017-2021
 - Student group theoretical / technical support, coordination and organization, NCSR D, 2017-2021
 - Scientific lectures and presentations on the CAKT / REPR research groups, 2017-2019
 - Course assistant (Data Structures, OOP, SoftEng for Networks Applications, Data Mining), UoA, 2015-2020
- **Conferences / Events:**
 - Workshop organizer / chair (MultiLing 2019, FNP/FNS 2020-2022)
 - Program Committee (AAACL-IJCNLP2020, SLT 2021, FNP/FNS2021-2022, SDPRA 2021)
 - Paper Reviewing (ICTAI, ACL, MLj, CIj, SLSP, CSL, openreview, etc.)
 - Technical support (Multiling 2017, AI4EU Athens), research proposal evaluation (AI4Copernicus)
- **Seminar / Workshop / Course participation:**

- [AGI Safety Fundamentals](#) 2022 (Effective Altruism Cambridge, virtual, Jan-Mar 2022)
- [AI Safety Camp](#) (virtual research workshop, working on Deep Multiagent RL, Jan - Jun 2022)
- “Stanford Existential Risk Initiative” Conference, 2022, virtual (Winter 2022)
- Reinforcement Learning / DRL courses (2) (Coursera, Huggingface, 2022)
- “Deep Learning in NLP” summer school (RANLP 2019, Fall 2019).
- Academic CompSci seminars (5), (DIT-UoA, 2015-2018)
- “CretaMASSS-2013 / HAISST’13-Agents” summer school on multi-agent systems & AI (TUoC, 2013).

PUBLICATIONS



• Journals:

1. N. Pittaras, G. Giannakopoulos, G. Papadakis, V. Karkaletsis, “Text classification with semantically enriched word embeddings”, JNLE Special Issue: Informing Neural Architectures for NLP with Linguistic and background Knowledge, 2020 [🔗](#)
2. F. Markatopoulou, V. Mezaris, N. Pittaras, I. Patras, “Local Features and a Two-Layer Stacking Architecture for Semantic Concept Detection in Video”, IEEE TETC, 2015 [🔗](#).

• Conferences / Workshops (sampled out of > 30 total):

1. N. Pittaras, and McGregor, S. “A Taxonomic System for Failure Cause Analysis of Open Source AI incidents”, SafeAI Workshop, AAAI 2023, Wahsington DC [🔗](#).
2. N. Pittaras “A Cooperative Reinforcement Learning Environment for Detecting and Penalizing Betrayal”, MLSafety Workshop, NeurIPS 2022, virtual [🔗](#).
3. N. Pittaras, V. Karkaletsis, “A study of semantic augmentation of word embeddings for extractive summarization”, Multiling Workshop, RANLP2019, Varna, Bulgaria [🔗](#).
4. C. Themeli, G. Giannakopoulos, N. Pittaras “A study of text representations for Hate Speech Detection”, CICLING 2019, La Rochelle, France [🔗](#).
5. N. Pittaras, G. Papadakis, G. Stamoulis, G. Argyriou, E. K. Taniskidou, E. Thanos, G. Giannakopoulos, L.Tsekouras, E. Koubarakis, “GeoSensor: Semantifying Change and Event Detection over Big Data”, SAC 2019, Limassol, Cyprus [🔗](#).
6. N. Pittaras, G. Giannakopoulos, L. Tsekouras, I. Varlamis, “Document clustering as a record linkage problem”, DocEng’18, Halifax, Nova Scotia, Canada, 2018 [🔗](#).
7. 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 [🔗](#).

• Book chapters:

1. N. Pittaras, S. Montanelli, G. Giannakopoulos, A. Ferrara, V. Karkaletsis, “Crowdsourcing in Single-document Summary Evaluation: the Argo Way”, Multilingual Text Analysis: Challenges, Models & Approaches, World Scientific Publishers, 2020 [🔗](#).
2. G. Giannakopoulos, G. Kiomourtzis, N. Pittaras, V. Karkaletsis, “Scaling and semantically enriching language-agnostic summarization”, Trends and Applications of Text Summarization Techniques, 2019 [🔗](#).

TECH SKILLS



- programming: python, java, bash, \LaTeX , C, C++, Matlab; various IDEs / SDKs
- ml: pytorch, sklearn, transformers, tensorflow, coffee, libsvm, opencv, weka, pettingzoo, gym, stable-baselines3
- mlops, monitoring: docker, mlflow, dvc, wandb, ray-tune, grafana
- db, semantics, cloud: cassandra, spark, mysql, postgres, influxdb, elasticsearch, GCP, mongo, sparql, protege
- web, docs, teams: html, tomcat, hugo, flask, restx, Jira, Trello, Slack, clickUp, Confluence, sphinx
- other: linux [🐧](#), git, maven, django, pdb, blender, godot, colab, gradescope, RDF, owl

LANGUAGE AND MISCELLANEOUS SKILLS



- Greek (Mother tongue), English (Fluent, Cambridge CPE), German (Basic)
- Completed lifeguard training, licensed to drive cars and speedboats.

HOBBIES AND INTERESTS



- Long distance running, cycling, swimming, video games & indie gamedev, popular science (math, physics).
- Musical instruments (guitar, piano, bass, ocarina), singing, song writing, recording.