



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++
 pytorch, sklearn, sb3
 mysql, postgres, cassandra
 docker, bash, git, linux

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"
> courses: {matlab, java, C++, python}, 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"
> courses: {C, C++, java, matlab, opengl, vhdl}, thesis: {matlab, unified PSO}

PROFESSIONAL EXPERIENCE



1. **ML Research Scientist:** [UL - DSRI/AIID](#) - Remote / Athens, Greece (part-time) February 2024 - present
 - **AI Taxonomy Engineering:** Technical AI taxonomy development, annotation of public AI incident reports.
2. **Senior ML Engineer:** [bunny.net](#) - Remote / Athens, Greece January 2023 - present
 - **ML Engineering:** Model design, implementation, training, tuning, explainability analysis and deployment, using RL (environment / reward engineering) and ML (regression, classification) methods for CDN optimization.
 - **Computer Vision:** Setup / customization of scalable text/image-to-video generation neural pipelines with StableDiffusion, as well as automatic image cropping pipelines using object and saliency detection workflows.
 - > python, pytorch/ptl, gym, sb3, sklearn, captum, docker, fastapi, influxdb, stable-diffusion, rabbitmq, mongo
3. **ML Research Scientist:** [RAIC/AIID](#) - Remote / Athens, Greece (part-time) July 2022 - December 2022
 - **AI Taxonomy Engineering:** Technical AI taxonomy development for system goals, technologies and failures.
 - **Academic Writing:** Scientific publication authorship for work and result dissemination and presentation.
4. **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
5. **Senior ML Engineer:** [LANGaware](#) - Athens, Greece June 2021 - December 2022
 - **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

6. **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
7. **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
8. **Lead ML Engineer:** [SciFY](#)- Athens, Greece (part-time) 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
9. **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
10. **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 admin. & engineering:** Software container design, backend / REST development, website migrations.
 - **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
11. **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 NCSR D CAKT and REPR research groups, 2017-2019
 - Course assistant (Data Structures, OOP, SoftEng for Networks Applications, Data Mining), UoA, 2015-2020
- **Conference / Event facilitation:**
 - Workshop organizer / chair (MultiLing 2019, FNP-FNS 2020-2023)
 - Program Committee (AAACL-IJCNLP2020, SLT 2021, FNP-FNS 2021-2023, SDPRA 2021)
 - Paper Reviewing (ICTAI, ACL, MLj, CIj, SLSP, CSL, openreview, CSET, etc.)
 - Technical support (Multiling 2017, AI4EU Athens), research proposal evaluation (AI4Copernicus)

• Seminar / Workshop / Course participation:

- Multiple courses on gen-AI, prompt eng., RHLF, vector-based retrieval etc., deeplearning.ai (2023 - present).
- [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, 2022-2023)
- “Deep Learning in NLP” summer school (RANLP 2019, Fall 2019).
- Academic CompSci seminars (5), (DIT-UoA, 2015-2018)
- “CretaMASSS-2013 / HAIS’13-Agents” summer school on multi-agent systems & AI (TUoC, 2013).

PUBLICATIONS



• Journals:

1. N. Pittaras, G. Giannakopoulos, P. Stamatopoulos, V. Karkaletsis, “Content-based and Knowledge-enriched Representations for Classification Across Modalities: a Survey”, ACM Computing Surveys, 2023 [📄](#).
2. 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 [📄](#)
3. 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 > 25 total – full list [here](#)):

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. 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 [📄](#).
5. 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 [📄](#).

SKILLS



- programming: python, java, \LaTeX , bash, C, C++, Matlab; various IDEs / SDKs
- ml: pytorch, sklearn, huggingface, tensorflow, opencv, pettingzoo, gym, sb3, ml-agents, captum, coffee, weka
- ml tools: pt-lightning, keras, docker, mlflow, dvc, wandb, clearml, ray/tune, tensorboard, grafana
- backend: cassandra, spark, mysql, postgres, influxdb, elasticsearch, GCP, mongo, sparql
- web, docs, teams: html, tomcat, hugo, flask, restx, Jira, Trello, Slack, clickUp, Confluence, sphinx
- other: linux [🐧](#), git, maven, django, pdb, blender, godot, colab, gradescope, airtable, RDF, owl
- ◊ languages : Greek (Mother tongue), English (Fluent, Cambridge CPE), German (Basic)
- misc: trained lifeguard, licensed to drive cars and speedboats.

HOBBIES / INTERESTS



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