PRAPAS CHRISTOS

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EDUCATION

Diploma (M.Eng.) in Electrical and Computer Engineering September 2019 - Expected 2025
Department of Electrical and Computer Engineering
University of Thessaly, Volos, Greece
GPA: 7,8/10

PROFESSIONAL PROFILE

Passionate AI & ML engineer with hands-on experience in deep learning for remote sensing, NLP, and recommender systems. Proven track record of end-to-end model development (data pipeline, architecture design, training & optimization) and deploying scalable solutions using Python, PyTorch, Pytorch-lightning, Tensorflow

WORKING EXPERIENCE

I am currently employed as a full-stack programmer at Agrosymbouli, a position I have held since September 2023. My responsibilities include the development of new features for a full-stack web application, web scraping, and statistical analysis.

PROJECTS

- **Developed a deep learning pipeline for satellite-based crop classification using ConvLSTM and geospatial data, combining AI, remote sensing, and software engineering.**
  Developed a deep learning model for crop type classification using time series of Sentinel-2 satellite imagery. Built a complete data processing pipeline (TIFF to NetCDF conversion), implemented spatiotemporal modeling with ConvLSTM architecture, and optimized training on modern hardware (M1/M2/M4 Mac, GPU/MPS). Addressed challenges of data imbalance, spatial resolution alignment, cloud masking, and model generalization across regions. Achieved improved macro-precision for underrepresented crop classes through advanced preprocessing and model tuning. Applied geospatial libraries (Rasterio, Geopandas, QGIS), PyTorch Lightning, and modern ML techniques. The project combined expertise in software engineering, remote sensing, and AI for precision agriculture applications.

- Development of C Advanced Code
  In depth understanding of pointers and file system operations for file management.

- **Understanding basic Data Structures**
  Projects with double-linked list, heaps, hash tables, binary trees, red-black tree, trie, graphs. In the same course we implemented all kind of sorting algorithms(bubble, quick, bucket sort etc.) and Dijkstra's Shortest path algorithm.

- **Creation of a simple database for a simple bank system**
  Creation of a scheme in postgre and export it in Sql and after a database in pgAdmin4. Then creation of a dashboard on access with options as adition, removal and review of info for the bank(how many and which employees are working, how many and which people are customers).

- **Knowlegde on core algorithms**
  Experience with Greedy algorithms, cache memory management with bloom filter, spanning tree algorithms and knapsack problem.

- **Development of image processing application.**
  During the course of Object Oriented Programming was implemented an image processing application with greyscale, doublesize, halfsize, rotateClockwise and histogram balancing options.

- **Creating a sudoku app in Java.**
  As a project in Object Oriented Programming we created a sudoku game that marks the mistaken cells with a different color. The player chooses the number that wants to add in a cell from given buttons, erases a number from a cell with a button, can see the solution with a button.

- **Development of c++ code.**
  In Object Oriented Programming we created a graph and HashTable implementation in cpp.

- **Implementation of projects in the context of the course Concurrent programming.**
  Implementation of a FIFO pipe for the communication between two threads.
  Train and passengers problem and narrow bridge problem with threads synchronized with binary semaphores.
  Train and passengers problem and narrow bridge problem with threads synchronized with mutexes and conditional variables.
  Producer-Consumer problem using coroutines. Implementation of user-level threads.

- **Implementation of some extra algorithms on a Linux OS using C programming language during the course of Operating Systems.**
  Implementation and support for SJF (Shortest Job First) process scheduling policy.
  Modification of the SLOB memory allocator in Linux and replace of the First-Fit algorithm with the Best-Fit algorithm, in order to minimize the external fragmentation during memory allocation.

- **Code optimization in the context of the course High Performance Computing.**
  Ready-made code was given that detects edges in a grayscale image using the Sobel filter and a series of optimizations were carried out where they improved the execution time of the program.
  The sequential code of an implementation of the k-means clustering algorithm was given which is susceptible to parallelization. The application was parallelized with OpenMP and its performance was evaluated on a multi-core system with an Intel Xeon E5-2695 processor.
  Familiarization with Cuda environment and creation of program in C for parallelizable convolution of a 2D image.
  Conversion of code with serial execution to parallelized code in Cuda environment and optimization of the parallelized code for better performance.

- **Web app development for Customer management for a Phone Service Company.**
  Design and development of frontend in Html, CSS , backend in Python using flask and database in MongoDB of an app for saving information about Customers and broken phones as they go through the proccess of repairing them.

- **Web app development of a Health Care System as a project in the course Software Development**
  As a part of a 6 people team we designed and developed the frontend, backend and database of a web application of a Health Care System. In the backend team where i belonged we used Java and Spring tool with which after the end of the project i got familiar with.

- **Creation of a simple card game.**
  Design and development of a card game in the unity environment.

- **Understanting and training of a ready NCF model**
  Cloning the repo Neural_Collaborative_Filtering and creating the data for training and testing. As a result we are calculating the accuracy of our model.

- **Learning of Fundamentals and Advances in Machine Learning**
  In the context of the class Neuro-Fuzzy Computing we got our hands on exercises with Linear Algebra, Gradient and Newton Descent, Fuzzy logic, Adaline, Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs) and backpropagation.

- **Development and training of a Language Proccesing Model using Convolutional Neural Networks.**
  Creation of a sequential CNN using Keras in Python for categorizing movies in 17 1st-level-categories and 125 2nd-level-categories. After formatting the data(cleaning from stopwords, using Transformers etc.), i did embedding to the data . Feeding the data to my CNN for training and testing i got the accuracy and the loss of my model.

- **Development of a behavioral model of a 5-stage, 32bit MIPS CPU, hardware university project.**
  The goal of the Computer Organization course work was to design, implement, and verify through simulation an architecture that implements a subset of the MIPS instructions. In particular, a multi-cycle MIPS processor with 5 pipeline stages was implemented. For this purpose Verilog hardware description language and a component library were used.

- **Design of a house electricity network using AutoCAD.**
  A complete electrical study of a house and then design of it in AutoCAD during the course of Technical Design.

- **Development of a kotlin app.**
  An android app that calculates your age in minutes.

TECHNICAL SKILLS

Programming Languages:	C/C++, Java, MIPS Assembly, MySQL, Kotlin, Python
Python Packages:	Selenium, Keras, Openpyxl, Pandas
Parallel Programming Languages and APIs:	CUDA, OpenMP
Hardware Description Languages:	Verilog
Tools:	Modelsim, AutoCAD
Mathematics Software:	Matlab
Operating Systems:	GNU/Linux, Windows
Performance Profilers:	Intel Vtune
Other know-how:	LATEX, Microsoft Office

LANGUAGES

Greek: Native Speaker
English: Certificate of English Language Competency from Michigan State University (CEF C2)
German: Goethe-Zertifikat B2