Alexandros Zekakos

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Athens
in Alexandros Zekakos
Alex-emb

TECHNICAL SKILLS

- Hardware desing
- FPGA programming
- Firmware development
- Microcode optimization
- In-memory computing
- Machine Learning
- AI applications
- Data visualization
- Web Development

HARD SKILLS

Programming

- Python

  Libraries: Pandas, Numpy, Sklearn, Scipy, Matplotlib, Seaborn, PyQt5, Keras, Tensorflow
- VHDL
- C
- Matlab
- JavaScript - HTML - CSS
- Git
- MS Office, LaTeX

Hardware

- Zynq-UltraScale
- Zynq-7000
- ARM & Microblaze processors

Development Tools

- Vivado - Vitis
- Modelsim
- Cadence
- VSCode

SOFT SKILLS

- Communication
- Critical thinking
- Problem Solving
- Time Management
- Organizational skills
- Creativity
- Efficiency
- Agile

LANGUAGES

Greek
English

REFERENCES

Provided upon request

WORK EXPERIENCE

Researcher, COMES Laboratory, University of Patras, Greece

Sep 2020 – Jul 2022

Project: Machine Learning Algorithms and In-memory Computing Acceleration

Funded by: IBM Zurich Research Laboratory

- Developed cutting-edge hardware, firmware, and software solutions.
- Successfully designed and implemented in-memory computing prototypes utilizing both the Single-Core and Multi-Core Hermes test evaluation platforms.
- Developed FPGA hardware modules and optimized the microcode of embedded processors for enhanced performance and functionality.
- Played a crucial role in supporting the Hermes set-up, including microcode implementation, hardware module integration, and comprehensive testing.
- Conducted extensive testing and analysis of the behavior of the Single-Core and Multi-Core Hermes systems, ensuring their reliability and efficiency.
- Utilized Hermes demonstrators to create AI applications, demonstrating the practical application of advanced technologies and algorithms.

Web Developer, Freelance

Mar 2023 – Present

Description: Unlocking a new skill

- Leveraging HTML, CSS, JavaScript, and other web technologies for user-friendly and optimized browsing experiences.
- Combining design and development expertise to create visually stunning and functional websites.
- Developing websites using Webflow for greater efficiency and flexibility.
- Creating unique and impactful web solutions tailored to each client's specific needs and goals.
- Staying up-to-date with the latest industry trends and advancements.

EDUCATION

Bachelor in Electrical and Computer Engineering

Department of Electrical and Computer Engineering, University of Patras, Greece - Integrated Master of Engineering

Sep 2013 – Jul 2020

- ***Division:*** Electronics and Embedded Systems
- ***Main Interests:*** Electronics, Embedded Systems, VLSI, Signal Processing, Machine Learning

Master in Information Processing Systems and Artificial Intelligence

Department of Electrical and Computer Engineering, University of Patras, Greece

Nov 2021 – Present

PROJECTS

Neural Network Implementation for Detection of Sleep Stage

Supervisor: Professor Theodore Antonakopoulos

Description: Master's thesis focused on developing an artificial neural network for sleep stage detection using heartbeat intervals. Implemented on Zynq-7000.

Link: `http://hdl.handle.net/10889/13704`

MVM Acceleration on Zynq UltraScale with URAM Utilization

Description: Achieved high-performance computing by leveraging URAMs for efficient storage of matrix parameters.

MVM Acceleration on Zynq UltraScale with FIR Utilization

Description: This project aimed to assess the efficiency of the FIR IP core in optimizing MVM operations.

Full Duplex Communication with Xon-Xoff Protocol using ARTY Boards

Description: Created a seamless full duplex communication system employing Xon-Xoff protocol on two ARTY boards, allowing character exchange with two terminal PCs via RS232.

Hardware Implementation of Data Encryption Standard (DES) in VHDL

Description: Designed and executed a robust hardware implementation of the Data Encryption Standard (DES) using VHDL, ensuring secure data encryption.