

# Alexandros Angelakis

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## Experience

### Speech Signal Processing Laboratory, UoC, CSD Research Intern

Heraklion, Greece  
June 2024 - Present

- Developed deep learning models for robust classification from cough audio signals (Tuberculosis detection), demonstrating expertise in Audio Understanding using Python, Sklearn, and TensorFlow.
- Contributed to building and evaluating a 20-hour multi-speaker Greek speech dataset, training state-of-the-art Text-to-Speech (TTS) models (FastSpeech2, VITS, Tacotron2, HiFi-GAN) with ESPnet.

### IACM, Foundation of Research and Technology, Hellas Research Intern

Heraklion, Greece  
July 2022 - Present

- Lead developer of NeuroDiMe, a Python library for neural-based statistical distance estimation (e.g., f-divergences, IPMs) within a unified framework supporting PyTorch, JAX, and TensorFlow. Deployed in cutting-edge AI workflows including  $\beta$ -VAE representation learning and GAN/VAE generative modeling. Supported by 🍏 Apple Inc. through IACM since June 2024 (ending June 2025).
- Designed and implemented graph traversal algorithms for optimal sensor placement in Water Distribution Networks, enabling accurate leak localization (Python, GeoPandas, NetworkX, GIS).

## Education

### University of Crete

Heraklion, Greece  
Feb. 2024 - Present

MSc. Computer Science and Engineering, Grade: 9.64/10.00 (Excellent)

- Thesis: Adaptive Sinusoidal Models for Parkinson's disease, supervised by Dr. George Kafentzis.
- Specialization: Artificial Intelligence, Machine Learning, Signal Processing.
- Teaching Assistant: Applied Mathematics for Engineers, Digital Signal Processing and Digital Speech Signal Processing (lecturing, supervision, grading).

### University of Crete

Heraklion, Greece  
Sept. 2019 - July 2023

BSc. Computer Science, Grade: 8.77/10.00 (Excellent)

- 4x IKY National Excellence Scholarship recipient (2020-2023)
- Chrysanthos and Anastasia Karidis Scholarship for top performance in national entrance exams. (2021)
- Teaching Assistant: Applied Mathematics for Engineers, Probabilities, and Information System Analysis and Design (lecturing, student supervision and grading).

## Skills

**Programming:** Python, MATLAB, C, Java

**Frameworks:** PyTorch, Tensorflow, JAX, Numpy, Pandas, Scikit-Learn, Scipy

**Databases:** SQL, PostgreSQL

**Languages:** English (Proficient), Greek (Native)

## Selected Projects

**Diabetes Prediction with Machine Learning.** Built an end-to-end AutoML pipeline for real-world diabetes prediction, integrating class balancing, model selection, and nested cross-validation for robust performance (Python, Scikit-Learn, 2025).

**Digital Speech Processing Projects.** Completed for the Digital Speech Signal Processing course taught by Prof. Yannis Stylianou. MATLAB-based implementations covering voice activity detection, LPC coding, sinusoidal modeling, and speaker identification. Projects involve hands-on speech signal analysis, enhancement, and classification using real-world audio datasets (2023).

**AlphaCompiler.** A complete compiler and virtual machine for the Alpha programming language (JavaScript-like syntax), developed from scratch, 2022. (C, Lex, Yacc/Bison)

## Volunteering

### Presenter

Feb. 2024

*University of Crete, Computer Science Department*

Delivered outreach presentations to high school students, highlighting cutting-edge research and real-world applications from the Speech Signal Processing Laboratory.

### Peer Mentor

Sep. 2022 - June 2023

*University of Crete, Computer Science Department*

Guided first-year students through the STEER mentoring program, fostering academic success and community integration.