# Alexandros Angelakis

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## Experience

**IACM, Foundation of Research and Technology, Hellas** — Heraklion, Greece
**Research Intern** — 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.
- Designed and implemented graph traversal algorithms for optimal sensor placement in Water Distribution Networks, enabling accurate leak localization (Python, GeoPandas, NetworkX, GIS).

**Speech Signal Processing Laboratory, UoC, CSD** — Heraklion, Greece
**Research Intern** — June 2024 - Present
- Developed deep learning models for Tuberculosis detection from cough audio signals, achieving robust classification between healthy and unhealthy samples (Python, Sklearn, TensorFlow).
- Contributed to building and evaluating a 20-hour multi-speaker Greek speech dataset, training state-of-the-art text-to-speech models with ESPnet.

## Education

**University of Crete** — Heraklion, Greece
MSc. Computer Science and Engineering, Grade: 9.58/10.00 (Excellent) — Feb. 2024 - Present
- Thesis: Adaptive Mel-Frequency Cepstral Coefficients for speech signal processing.
- Specialization: Artificial Intelligence, Machine Learning, Signal Processing.
- Teaching Assistant: Applied Mathematics for Engineers and Digital Signal Processing (lecturing, supervision, grading).

**University of Crete** — Heraklion, Greece
BSc. Computer Science, Grade: 8.77/10.00 (Excellent) — Sept. 2019 - July 2023
- 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**. 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.