

# Michail Sapkas

**Nationality:** Greek, Italian **Date of birth:** 28/09/1991 **Phone number:** (+30) 6986167991

**Phone number:** (+39) 3665002145 **Email address:** [michail.sapkas@gmail.com](mailto:michail.sapkas@gmail.com)

**Instagram:** <https://www.instagram.com/michail.sapkas/>

**LinkedIn:** [www.linkedin.com/in/michail-sapkas-270006223](http://www.linkedin.com/in/michail-sapkas-270006223)

**Facebook:** <https://www.facebook.com/michail.sapkas/>

**Website:** <https://github.com/Msapkas>

**Home:** Leonidou 7 Karaiskaki 21, 41222 Larissa (Greece)

## ABOUT ME

---

Physics - Deep Learning - Hardware

## WORK EXPERIENCE

---

### AI Engine Developer on the Versal VCK190

**Karlsruhe Institute of Technology (KIT) - Institute for Data Processing and Electronics (IPE)** [ 15/03/2024 – 01/08/2024 ]

City: Karlsruhe | Country: Germany | Website: <https://www.ipe.kit.edu/english/index.php>

- Developed Custom Hardware Benchmark System
- Deployed a modified Reinforcement Learning Agent on Synchrotron Accelerator (KARA)
- Developed a Gated Recurrent Unit using VCK190 AI Engines Paradigm

### Undergraduate Fellow

**Foundation for Research and Technology - Hellas (FORTH)** [ 01/10/2021 – 01/04/2022 ]

City: Heraklion | Country: Greece

Link: [https://quietseas.eu/wp-content/uploads/2022/06/QUIETSEAS\\_D4.2.Recommendations-on-the-applicability-of-acoustic-propagation-modelling-approaches-for-continuous-sound-assessment-in-the-MS-and-BS-regions\\_170522.pdf](https://quietseas.eu/wp-content/uploads/2022/06/QUIETSEAS_D4.2.Recommendations-on-the-applicability-of-acoustic-propagation-modelling-approaches-for-continuous-sound-assessment-in-the-MS-and-BS-regions_170522.pdf)

- Benchmark of acoustic propagation models (or modelling approaches) to simulate ship traffic noise
- Models run: RAMGeo, BELLHOP, KRAKEN
- Assessment of continuous sound in the Mediterranean and Black Seas as part of the European Commissions QUIETSEAS project

## EDUCATION AND TRAINING

---

### PhD

**University of Padova** [ 01/11/2024 – Current ]

City: Padova | Country: Italy | Website: <http://boostlab.dfa.unipd.it/people/sapkas-michail/>

### Master's Degree - Physics of Data

**University of Padova** [ 01/10/2022 – 11/09/2024 ]

City: Padova | Country: Italy | Website: <http://physicsodata.dfa.unipd.it>

## Master's Thesis

**Karlsruhe Institute of Technology - University of Padova** [ 01/07/2024 – 02/09/2024 ]

City: Padova | Country: Italy | Field(s) of study: Control Theory / Accelerator Physics | Thesis: Beam Control with Fast Reinforcement Learning Inference at the Edge

- Trying to control Microbunching Instability on Karlsruhe Accelerator
- Acquired hands on practice with Versal VCK190, C++, Vitis, Vivado
- Ultra Fast ( $\mu$ s) Neuron Network Inference on embedded systems

## Bachelor's degree - Physics

**University of Crete Department of Physics** [ 01/09/2013 – 01/04/2022 ]

Address: Voutes University Campus, 71003 Heraklion (Greece) | Website: <https://www.physics.uoc.gr/en> | Final grade: 7.2 / 10

## Bachelor's Thesis

**University of Crete Department of Mathematics & Applied Mathematics** [ 30/04/2021 – 15/02/2022 ]

Address: Voutes University Campus, 71003 Heraklion (Greece) | Website: <http://www.math.uoc.gr/en/> | Field(s) of study: Underwater Acoustics | Final grade: 10.0 / 10.0 | Type of credits: ECTS | Number of credits: 12 | Thesis: Gaussian Beam Tracing

Presentation of the basic concepts in underwater acoustics modelling: Geometrical Acoustics and Ray Theory, Gaussian Beams Theory and benchmarking the BELLHOP ray tracing program with KRAKEN, a normal modes program, running 3 simple scenarios and a realistic scenario of shipping noise propagation in Northern Crete.

## LANGUAGE SKILLS

---

**Mother tongue(s):** Greek | Italian

**Other language(s):**

### English

LISTENING C1 READING C1 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

## DIGITAL SKILLS

---

Problem Solving

### Python

Jupyter Notebook / High Level Programming / Concurrency / Python visualization libraries (Matplotlib & Seaborn) / Numpy / Subprocesses / Pandas

### Machine Learning and Deep Learning

Tensor Networks / PyTorch / Bayesian Optimization / Sci-Kit Learn / Tensorflow / RBM (Restricted Boltzmann Machine) / Transformers / Autoencoders / RNNs / CNNs / Residuals

### Programming Languages and Computers

Git / Python / Docker / SQL / R / Fortran / C++ / LaTeX / Linux

### Distributed Computing

Dask / PySpark

### Embedded Systems

VHDL / Verilog / Xilinx Vivado/Vitis / Versal AI Core VCK190 / Nvidia Jetson Nano / ESP32 / Arduino & Arduino IDE / Artix-7 FPGA Development Board