Alexandra Bekou

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Alexandra Bekou | darwinsorchid

Thessaloniki - 54634, Greece

Objective

Biologist with a biomedical background working at the intersection of biology and computer science. Skilled in conducting developmental biology research as well as applying natural computing algorithms for the optimization of AI architectures. Eager to explore bioinformatics and modeling of complex systems to uncover the fundamental principles of life while contributing to innovative and interdisciplinary research projects.

Experience

- **ATHENA Research Center | Industrial Systems Institute (ISI)** *March 2025 – Present*

  Collaborating Researcher Thessaloniki, Greece

  Security and Protection of Systems, Networks and Infrastructures

  Project: CoEvolution - A comprehensive trustworthy framework for connected machine learning and secure interconnected AI solutions

  - Designing and testing coevolutionary algorithms for agentic AI systems in the field of cyber-ecology, using benchmark image classification (MNIST, CIFAR10) and clinical datasets.
    (*manuscript in preparation*)
  - Collaborating with a cross-disciplinary team developing bio-inspired AI architectures enriched with information from biological networks.
    (*manuscript in preparation*)

- **Biohellenika S.A.** *July 2023 – August 2023*

  Paid Internship Thessaloniki, Greece

  - Gained experience in the company's Research and Development department workflows, focusing on biomedical research projects using stem cells.
  - Completed and presented extensive research on the subject of ARPE-19 culture for an in vitro study of age-related macular degeneration.

- **Laboratory of Developmental Biology, AUTh** *November 2022 – February 2024*

  Practical Research Internship Thessaloniki, Greece

  - Contributed to the development of an hiPSCs differentiation protocol for neuromesodermal organoids as a model for the developmental stages of Friedreich's Ataxia.
  - Contributed to the development of an immunocytochemistry protocol for human organoids.
  - Gained experience in culturing hiPSCs, HEK cells, MEF feeder cells and bacterial cultures as well as confocal immunofluorescence microscopy, viral transfection and qPCR techniques.

Education

- **Independent Research and Learning** *April 2024 – March 2025*

  Professional Development Thessaloniki, Greece

  - Pursued self-directed learning in Bioinformatics, Computational Biology, Network Theory, and Natural Computing.

- **Aristotle University of Thessaloniki** *October 2019 – April 2024*

  Bachelor of Science in Biology Thessaloniki, Greece

  - **Grade**: 9.17/10.00 "EXCELLENT"
  - **Diploma Thesis**: "Development of neuromesodermal organoids from human induced pluripotent stem cells for the study of Friedreich's Ataxia"
  - **Relevant Coursework**: Developmental Biology, Molecular Biology, Genetics, Bioinformatics, Evolution with Elements of Population Genetics, Mathematics and Statistics in Biology

- **1st General High School of Agrinio** *June 2018*

  Secondary Education Agrinio, Greece

  - Grade: 19.7/20.0 "EXCELLENT"

Skills

- **Programming Languages:** Python, R
- **VCS:** Git / GitHub
- **Laboratory Skills:** 2D and 3D stem cell culture, Organoid disease modeling, Immunocytochemistry, CRISPR-Cas9 genome editing, Viral vector production and transfection
- **Soft skills:** Quick learning, Analytical thinking, Adaptability, Attention to detail, Initiative

Honors and Awards

- **Best Oral Presentation Award** *May 2024*
  43rd EEBE Conference
  - Presentation title: "Indications of an innovative role of axial progenitors in human cardiac development"

Course Certifications

- Become a Linear Algebra Master *December 2024*
- Optimization with Genetic Algorithms: Hands-on Python *November 2024*
- Mathematics Behind Large Language Models and Transformers *November 2024*
- Python for Bioinformatics: Exploring Biological Data *October 2024*
- Learn Bioinformatics From Scratch (Theory and Practical) *May 2024*
- The Complete Python Bootcamp: From Zero to Hero in Python *May 2024*

Conferences / Workshops

- AIDA Symposium and Summer School on **'AI/ML Cutting Edge Trends'** *July 2025*
- **Dynamics Days Europe** 2025 *June 2025*
- 2nd Panhellenic Conference of Student Bioscientists *March 2024*
  - **Generating Biological Networks using R**
  - **Differential Expression Analysis: Diving into the transcriptome using R and Python**

Additional Information

- **Languages:** English (IELTS Band Score 8.5 | ECPE Michigan - Level C2), Greek (Native)
- **Interests:** Coding, Photography, Sketching

References

Available upon request.