

# STAMATIS CHOUDALAKIS

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## SUMMARY

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I am a mathematician, currently pursuing my PhD in bioinformatics. I have a strong foundation in machine learning algorithms, specializing in clustering analysis and network graph theory. I have proven experience in data curation, feature engineering, and developing robust, reproducible data science and machine learning pipelines using Python and R. Military obligations are fulfilled.

## EXPERIENCE

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### Freelancing

Athens, Greece

Sep 2020 – Present

Provided comprehensive instruction in diverse mathematical fields, including Python and R programming, to over 80 undergraduate and postgraduate students. Delivered successful freelancing services in Python/R/VBA development and data science projects, including data curation, analysis, and model implementation for various clients, explaining complex technical subjects in an accessible manner.

### Elementary School Teacher

Zygouraki-Leontioy Centre of Creative Activities for Children | Athens, Greece

Jan 2024 – Jun 2024

Tutored and supported 8+ elementary students per hour in completing math assignments.

### Ballroom Dance Instructor

The Dance Club, The Mall of Dance | Athens, Greece

Sep 2016 – Jul 2022

Taught, choreographed, and competed in Latin, European, and Modern ballroom dances with students aged 15-65. Mentored 5 students who are now professional dancers.

## EDUCATION

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### PhD in Bioinformatics

Mathematics Research Center, Academy of Athens | School of Medicine, NKUA

Mar 2024 – Present

Thesis: “Cancer driver gene identification using machine learning”.

Identified 42 previously unreported mutational patterns in cancer initiation and progression. Built state-of-the-art machine learning and data curation pipelines using Python and R. Optimized computational workflows and solving critical bottlenecks. Created rigorously tested and clean code for reproducible results.

### MSc in Applied Mathematics

Department of Mathematics, NKUA

Sep 2020 – Jun 2022

Syllabus included advanced topics in statistical simulation, statistics of machine learning, numerical methods for ODEs, and numerical linear algebra. Dissertation: “Network Graphs of Cancer Mutations” in <https://pergamos.lib.uoa.gr/uoa/dl/object/3237319>.

### BSc in Mathematics

Department of Mathematics, NKUA

Sep 2015 – Sep 2020

## LECTURES

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### Lectures on Machine Learning

School of Medicine, NKUA

Mar 2024 – Present

## TECHNICAL SKILLS

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### Programming Languages

Proficient in Python, R. Experienced in Unix and VBA. Familiar with SQL, Matlab, and Julia.

### Machine Learning

Clustering Analysis, Dimensionality Reduction, Classification, Regression, Feature Engineering, Model Evaluation, Cross-validation, Hyperparameter Tuning.

### Data Analysis and Visualization

Data Curation (pandas, r-base), Exploratory Data Analysis (matplotlib, ggplot2), Network Visualization (Gephi, Cytoscape), Statistical Modelling

### Tools

VS Code, Git, LaTeX, Docker, Jupyter Notebook, SSMS, SSH.

## GRANTS & AWARDS

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### Applications of Artificial Intelligence in Medicine and Biotechnology (27.725 €)

Mathematics Research Center, Academy of Athens

Oct 2024 – Dec 2025

Funding Body: National Development Program (NDP) 2021-25 (ΟΠΣ 5223471). Principal Investigator: G. Kastis. Co-investigators: A Fokas, N. Dikaïos, K. Kalimeris, G. Papanastasiou, N. Protonotarios.

## PUBLICATIONS

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**Choudalakis S., Kastis G. A., & Dikaïos N. (2025). Intra-clustering analysis reveals tissue-specific mutational patterns.** Computer Methods and Programs in Biomedicine, 263, 108681. (<https://doi.org/10.1016/j.cmpb.2025.108681>)

**Choudalakis S., Mitrouli M., Polychronou A., & Roupa P. (2021). Solving high-dimensional problems in statistical modelling: a comparative study.** Mathematics, 9(15), 1806. (<https://doi.org/10.3390/math9151806>)

## FOREIGN LANGUAGES

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### English

Level C2, ECPE, University of Michigan

Jun 2013

### Italian

Level B1, National Foreign Language Exam System

Jun 2012