

ATHANASIOS G. DONAS, PhD

Adjunct Lecturer | Hellenic Naval Academy
Doctor of Philosophy in Electrical & Computer
Engineering

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RESEARCH & SCIENTIFIC INTERESTS

- Hybrid AI & Statistical Modeling Systems:** Integration of Artificial Neural Networks (ANN/RBF) and Kalman Filtering techniques (Standard & Extended Kalman Filters) for data assimilation and operational optimization.
- Numerical Forecasting & Time-Series Analytics:** Optimization of numerical environmental and atmospheric prediction models, temporal data analysis, and error reduction methodologies.
- Quantitative Risk Assessment & Decision Support:** Operational research, simulation-based modeling, and decision support algorithms for naval and environmental applications.

SUMMARY OF ACADEMIC & TEACHING ACTIVITY

Higher Education Academic & Teaching Experience	2+ Years (HNA, UNIWA)
Peer-Reviewed Scientific Journal Publications	8 Published Articles
International Conference Proceedings & Presentations	6+ Papers
Participation in Funded Research Projects	6 Years (UNIWA & HNA)
MSc Thesis Advisory & Examination Committees	Member of MSc Thesis Committees
Doctoral & Postgraduate Supervision Support	Active Contributor

EDUCATION

PhD in Electrical & Computer Engineering | 2019 – 2025

University of West Attica (UNIWA), Greece

Dissertation: 'Development of advanced simulation methodologies utilizing computational intelligence frameworks and statistical modeling approaches for applications in environmental process simulation systems.'

MSc in Production Engineering & Management | 2017 – 2019

Technical University of Crete, Greece

Specialization: Risk Theory and Measures with Applications to Environmental Operational Models.

BSc in Mathematics | 2011 – 2016

National & Kapodistrian University of Athens (NKUA), Greece

Specialization: Applied Mathematics.

ACADEMIC & TEACHING EXPERIENCE

Adjunct Lecturer (Contract-Based) | 2024 – Present

Hellenic Naval Academy (HNA), Section of Mathematics

Responsible for autonomous undergraduate teaching: Single and Multivariable Calculus, Linear Algebra, and Applied Statistics. Designed course curriculum, lecture delivery, homework assignments, and final examinations.

Adjunct Lecturer (Contract-Based) | Winter 2025–26, 2026–27

University of West Attica (UNIWA), Dept. of Electrical & Electronics Engineering

Independent teaching of the undergraduate course 'Mathematical Analysis'. Prepared syllabus, conducted lectures, tutorials, and evaluated student academic performance.

MSc Examination & Advisory Committee Member | Recent Appointment

Hellenic Naval Academy / Partner Institutions

Participating as an official committee member evaluating and reviewing Master's Degree (MSc) theses in applied numerical analysis and operational modeling.

Mathematics Instructor (Secondary & Tutorial Education) | 2018 – Present

Private Academic Institutes, Athens, Greece

Teaching advanced mathematics, preparing students for national university entrance examinations.

RESEARCH & PROFESSIONAL EXPERIENCE

Research Scientist | 2019 – 2025

University of West Attica & Hellenic Naval Academy

Developed hybrid AI forecasting methodologies combining Neural Networks and Kalman Filters. Implemented real-time dynamic covariance assimilation models tested on operational datasets from the Aegean Sea, Pacific Ocean, and Northern Greece.

CAX Operator (Computer-Assisted Exercises) | 2017 – 2018

NATO Joint Warfare Centre (JWC), Stavanger, Norway

Operated the Joint Theater Level Simulation (JTLS) system for planning, monitoring, and executing complex multinational NATO simulated exercises.

SELECTED PEER-REVIEWED JOURNAL PUBLICATIONS

1. Donas, A., Galanis, G., Pytharoulis, I., & Famelis, I. Th. (2026). Optimization of a Hybrid EKF-ANN Model via Double-Criterion Early Stop Pruning for Enhanced Wind Speed Forecasting. *Mathematics*, 14(10), 1650.
2. Donas, A., Galanis, G., Pytharoulis, I., & Famelis, I. Th. (2026). A Hybrid Offline–Online Kalman–RBF Framework for Accurate Relative Humidity Forecasting. *Atmosphere*, 17(2), 162.
3. Donas, A., Galanis, G., Pytharoulis, I., & Famelis, I. Th. (2025). A Modified Kalman Filter Based on Radial Basis Function Neural Networks for the Improvement of Numerical Weather Prediction Models. *Atmosphere*, 16(3), 248.
4. Donas, A., Kordatos, I., Alexandridis, A., Galanis, G., & Famelis, I. Th. (2024). A Dual Filter Based on Radial Basis Function Neural Networks and Kalman Filters with Application to Numerical Wave Prediction Models. *Sensors*, 24(24), 8006.
5. Kordatos, I., Donas, A., Galanis, G., Famelis, I., & Alexandridis, A. (2024). Significant wave height prediction in nested domains using radial basis function neural networks. *Ocean Engineering*, 305, 117865.
6. Donas, A., Galanis, G., Pytharoulis, I., & Famelis, I. Th. (2024). A Hybrid Extended Kalman Filter Based on Parametrized ANNs for the Improvement of the Forecasts of Numerical Weather and Wave Prediction Models. *Atmosphere*, 15(7), 828.
7. Donas, A., Famelis, I., Chu, P. C., & Galanis, G. (2023). Optimization of the Navy's three-dimensional mine impact burial prediction simulation model, Impact35, using high-order numerical methods. *The Journal of Defense Modeling and Simulation*, 20(2), 197–212.
8. Famelis, I., Donas, A., & Galanis, G. (2022). Comparative study of FeedForward and Radial Basis Function Neural Networks for solving an Environmental Boundary Value Problem. *Results in Applied Mathematics*, 16, 100344.

SELECTED INTERNATIONAL CONFERENCES

1. Donas, A., Famelis, I., & Galanis, G. (2025). An extended Hybrid Kalman Filter utilizing a parametrized radial basis function neural network for WAM-CYCLE 4 forecasts enhancement. ICCMSE 2025.
2. Donas, A., Famelis, I., Galanis, G., & Kolokotsa, D. (2024). Improving the forecasts of a numerical wave model based on Kalman Filters and ANNs. GeoEnv 2024, Chania, Greece.
3. Donas, A., Galanis, G., & Famelis, I. Th. (2023). A Hybrid Extended Kalman Filter Based on Parametrized FeedForward Neural Networks. COMECAP 2023, MDPI Environ Sci Proc.
4. Donas, A., Famelis, I., Chu, P. C., & Galanis, G. (2022). Optimization of the Navy's 3D mine impact burial model Impact35. NATO MASTMED International Conference, Athens, Greece.

TECHNICAL SKILLS & LANGUAGES

Programming & Scientific Software: MATLAB, Python (Scikit-Learn, PyTorch, NumPy, SciPy), Data Assimilation Frameworks, Linux.

Languages: Greek (Native), English (Full Professional Proficiency - C2 equivalent), Russian (Basic - A1).