Curriculum Vitae

Omiros Ragos
Department of Mathematics, University of Patras, 26504, Greece
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Academic Education
Diploma in Mathematics, University of Patras, 1982
PhD in Mathematics, University of Patras, 1989

Academic Positions
University of Patras – Department of Mathematics, Division of Computational Mathematics and Informatics

- Lecturer   1995-2001
- Assistant Professor   2001-2004
- Assistant Professor (tenure)   2004-2022
- Associate Professor   2022-

Hellenic Open University – School of Science and Engineering - Undergraduate program on Informatics

- Associate Educational Staff member 2005-2016, 2017-2023

Teaching Experience
Undergraduate courses
University of Patras, Department of Mathematics
Introduction to Computers and Programming with Fortran
Object-Oriented Programming with C++
Programming Languages II (Concurrent Programming with Ada)
Logic Programming
Mathematical Foundations of Theory of Computation
Hellenic Open University – School of Science and Engineering
Mathematics for Informatics I
Postgraduate courses
University of Patras, Department of Mathematics
Logic and Logic Programming
Applications of Computational Mathematics
Data Bases and Data Mininig

Educational textbooks
Object-Oriented Programming with C++, Dept. of Mathematics, University of Patras
Programming Languages II, Dept. of Mathematics, University of Patras
Logic Programming and Prolog, Dept. of Mathematics, University of Patras
Mathematical Foundations of Theory of Computation, Dept. of Mathematics, University of Patras

Research

Research interests
Computational methods for problems in Dynamical Systems
Computational methods for studying Special Functions
Mathematical foundation and algorithms in Semantic Web services
Application of algorithms in Machine Learning

Publications in international journals
[J1] O. Ragos and C. Zagouras,
       The zero velocity surfaces in the photogravitational restricted three-body problem,

1988, Earth, Moon, and Planets, **41**, pp.257-278.

[J2] O. Ragos and C. Zagouras,
Periodic solutions about the `out of plane' equilibrium points in the photogravitational restricted three-body problem,
1988, Celestial Mechanics, **44**, pp.135-154.

[J3] O. Ragos and C. Zagouras,
Periodic solutions around the collinear Lagrangian points in the photogravitational restricted three-body problem: Sun-Jupiter case,
1991, Celestial Mechanics, **50**, pp.325-347.

[J4] O. Ragos, C.G. Zagouras and E. Perdios,
Periodic motion around stable collinear equilibrium point in the photogravitational restricted problem of three bodies,
1991, Astrophysics and Space Science, **182**, pp.313-336.

[J5] E. Perdios, C.G. Zagouras and O. Ragos,
Three-dimensional bifurcations of periodic solutions around the triangular equilibrium points of the restricted three-body problem,
1991, Celestial Mechanics and Dynamical Astronomy, **51**, pp.349-362.

[J6] O. Ragos and C.G. Zagouras,
On the existence of the 'out of plane' equilibrium points in the photogravitational restricted three-body problem,
1993, Astrophysics and Space Science, **209**, pp.267-271.

[J7] O. Ragos and F.A. Zafiropoulos,
A numerical study of the influence of the Poynting-Robertson effect on the equilibrium points of the photogravitational restricted three-body problem: I. Coplanar case,
1995, Astronomy and Astrophysics, **300**, pp.568-578.

[J8] O. Ragos and F.A. Zafiropoulos and M.N. Vrahatis,
A numerical study of the influence of the Poynting-Robertson effect on the equilibrium points of the photogravitational restricted three-body problem: II. Out of plane case,
1995, Astronomy and Astrophysics, **300**, pp.579-590.

[J9] M.N. Vrahatis, O. Ragos, T. Skiniotis, F.A. Zafiropoulos and T.N. Grapsa,
RFSFNS: A portable package for the numerical determination of the number and the calculation of roots of Bessel functions,
1995, Computer Physics Communications, **92**, pp.252-266.

[J10] L. Drossos, O. Ragos, M.N. Vrahatis and T. Bountis,
Method for computing long periodic orbits of dynamical systems,
1995, Physical Review E, **53(1)**, pp.1206-1211.

[J11] M.N. Vrahatis, O. Ragos, F.A. Zafiropoulos and T.N. Grapsa,
Locating and computing zeros of Airy functions,
1996, Zeitschrift für Angewandte Mathematik und Mechanik, **76**, pp.419-422.

[J12] C.G. Zagouras, E. Perdios and O. Ragos,
New kinds of asymmetric periodic orbits in the restricted three-body problem,
1996, Astrophysics and Space Science, **240**, pp.273-293.

[J13] M.N. Vrahatis, T.N. Grapsa, O. Ragos and F.A. Zafiropoulos,
On the localization and computation of zeros of Bessel functions,
1997, Zeitschrift für Angewandte Mathematik und Mechanik, **77(6)**, pp.467-475.

[J14] M.N. Vrahatis, O. Ragos, T. Skiniotis, F.A. Zafiropoulos and T.N. Grapsa,
The topological degree theory for the localization and computation of complex zeros of Bessel functions,
1997, Numerical Functional Analysis and Optimization, **18(1\&2)**, pp.227-234.

[J15] O. Ragos, K.E. Papadakis and C.G. Zagouras,
Stability regions and quasi-periodic motion in the vicinity of triangular equilibrium points,
1997, Celestial Mechanics and Dynamical Astronomy, **67**, pp.251-274.

[J16] P. Kravanja, O. Ragos, M.N. Vrahatis, and F.A. Zafiropoulos,
ZEBEC: A mathematical software package for computing zeros of Bessel functions of real order and complex argument, 1998, Computer Physics Communications, **113**, pp.220-238.

[J17] P. Kravanja, M. Van Barel, O. Ragos, M.N. Vrahatis, and F.A. Zafiropoulos,
ZEAL: A mathematical software package for computing zeros of analytic functions,
2000, Computer Physics Communications, **124**, pp.212-232.

[J18] V.S. Kalantonis, E.A. Perdios, A.E. Perdiou, O. Ragos, and M.N. Vrahatis,
On the application of optimization methods to the determination of members of families of periodic solutions,
2003, Astrophysics and Space Science, **288(4)**, pp.581-590.

[J19] V.S. Kalantonis, E.A. Perdios, A.E. Perdiou, O. Ragos, and M.N. Vrahatis,
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2003, Astrophysics and Space Science, **288(4)**, pp.591-599.

[J20] E.A. Perdios and O. Ragos,
Asymptotic and periodic motion around collinear equilibria in the Chermnykh's problem,
2004, Astronomy and Astrophysics, **414**, pp.361-371.

[J21] V.S. Kalantonis, E.A. Perdios and O. Ragos,
Asymptotic and periodic orbits around L_3 in the photogravitational restricted three-body problem, 2006, Astrophysics and Space Science, **301**, pp.157-165.

[J22] K. Papadakis, O. Ragos and C. Litzerinos,
Asymmetric periodic orbits in the photogravitational Copenhagen problem,
2009, Journal of Computational and Applied Mathematics, **227**, pp.102-114.

[J23] I. Haranas and O. Ragos,
Yukawa-type effects in satellite dynamics,
2011, Astrophysics and Space Science, **331(1)**, pp. 115-119.

[J24] I. Haranas, O. Ragos and V. Mioc,
Yukawa-type potential effects in the anomalistic period of celestial bodies,
2011, Astrophysics and Space Science, **332(1)**, pp. 107-113.

[J25] I. Haranas and O. Ragos,
Calculation of radar signal delays in the vicinity of the Sun due to the contribution of a Yukawa correction term in the gravitational potential,
2011, Astrophysics and Space Science, **334(1)**, pp. 71-74.

[J26] I. Haranas, O. Ragos and I. Gkigkitzis,
Horava–Lifshitz gravity: calculation of radar signal delay contribution in the vicinity of the Sun in the Kehagias–Sfetsos solution,
2011, Astrophysics and Space Science, **335(2)**, pp. 539-543.

[J27] I. Haranas, O. Ragos and I. Gkigkitzis,
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2012, Astrophysics and Space Science, **342(1)**, pp. 281–285.

[J28] O. Ragos , I. Haranas and I. Gkigkitzis,
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2013, Astrophysics and Space Science, **345(1)**, pp. 67–72.

[J29] I. Haranas, O, Ragos and I, Gkigkitzis, The Lense-Thirring effect in the anomalistic period of celestial bodies, 2013, American Journal of Space Science 1(2), pp.46-53.

[J30] I. Gkigkitzis, I. Haranas and O. Ragos, Kretschmann invariant and relations between spacetime singularities entropy and information, 2014, Physics International, **5(1)**, pp. 103-111.

[J31] I. Haranas, O. Ragos., I. Gkigkitzis and I. Kotsireas, Quantum and post-Newtonian effects in the anomalistic motion and in the period and the mean motion of celestial bodies, 2015, Astrophysics and Space Science, **358**, pp. 12-19.

[J32] I. Haranas, O. Ragos, I. Gkigkitzis, I. Kotsireas, C. Martz and S. VanMiddekoop, The Poynting-Robertson effect in the Newtonian potential with a Yukawa correction, 2018, Astrophysics and Space Science, 363(3), DOI 10.1007/s10509-017-3219-4.

[J33] G. Kostopoulos, S. Karlos, S. Kotsiantis and O. Ragos, Semi-supervised regression: A recent review, 2018, Journal of Intelligent & Fuzzy Systems, 35, pp. 1483–1500, DOI 10.3233/JIFS-169689.

[J34] O. Ragos, A.E. Perdiou and E.A. Perdios,
The three-body interaction effect on the families of 3D periodic orbits associated to Sitnikov motion in the circular restricted three-body problem,
2019, Journal of Astronautical Sciences, **67**: pp. 28–58,
https://doi.org/10.1007/s40295-019-00193-0.

[J35] M. Tsiakmaki, G. Kostopoulos, S. Kotsiantis and O. Ragos,
Implementing AutoML in educational data mining for prediction tasks,
2020, Applied Sciences, **10(1)**, 90, pp. 1-27; https://doi.org/10.3390/app10010090.

[J36] P. Tsoutsa, P. Fitsilis, L. Anthopoulos and O. Ragos,
Nexus services in smart city ecosystems,
2020, Journal of the Knowledge Economy, published online, pp. 1-21;
https://doi.org/10.1007/s13132-020-00635-3.

[J37] M. Tsiakmaki, G. Kostopoulos, S. Kotsiantis and O. Ragos,
Transfer Learning from Deep Neural Networks for Predicting Student Performance,
2020, Applied Sciences, **2020**, **10(6)**, 2145, pp. 1-12; https://doi.org/10.3390/app10062145.

[J38] M. Tsiakmaki, G. Kostopoulos, S. Kotsiantis and O. Ragos,
Fuzzy-based Active Learning for Predicting Student Academic Performance using autoML: a step-wise approach,
2021, Journal of Computing in Higher Education, **2021**, pp. 1-33 (published online 12 May 2021); https://doi.org/10.1007/s12528-021-09279-x.

[J39] O. Ragos,
Short and long period periodic orbits around a stable collinear equilibrium point in the circular restricted three-body problem with a three-body interaction
2022, New Astronomy, **98 (2023)** 101900, pp. 1-11 (published online 22 June 2022);
https://doi.org/10.1016/j.newast.2022.101900.

Publications in proceedings of international conferences

[P1] O. Ragos, M.N. Vrahatis and F.A. Zafiropoulos,
The topological degree for the computation of the total number of equilibrium points in ODEs,
1995, 3rd International Colloquium on Numerical Analysis: Invited Lectures and Short Communications (1994, Plovdiv, Bulgaria), edited by D. Bainov and A. Dishliev, Sc. Cult. Techn. Publ., Singapore, pp.147-156.

[P2] O. Ragos and C.G. Zagouras,
A numerical algorithm for the determination of regions of quasi-periodic motion in two-dimensional Hamiltonian systems,
1995, 3rd International Colloquium on Numerical Analysis: Invited Lectures and Short Communications (1994, Plovdiv, Bulgaria), edited by D. Bainov and A. Dishliev, Sc. Cult. Techn. Publ., Singapore, pp.157-164.

[P3] O. Ragos, M.N. Vrahatis and F.A. Zafiropoulos,
The topological degree for the computation of the exact number of equilibrium points of dynamical systems,
1994, Proceedings of the 2nd Hellenic-European Conference on Mathematics and Informatics HERMIS 94, Athens, Greece, Vol.2, pp.533-542.

[P4] O. Ragos, M.N. Vrahatis and G.S. Androulakis,
Methods for the computation of periodic solutions of dynamical systems,
1996, Proceedings of the Sixth International Colloquium on Differential Equations (1995,

Plovdiv, Bulgaria), edited by D. Bainov, VSP, Netherlands, pp.213-220.

[P5]   O. Ragos, M.N. Vrahatis and F.A. Zafiropoulos,
The computation of equilibrium points of up-to-three dimensional dynamical systems using the topological degree theory,
1996, Proceedings of the Sixth International Colloquium on Differential Equations (1995, Plovdiv, Bulgaria), edited by D. Bainov, VSP, Netherlands, pp.221-228.

[P6]   F.A. Zafiropoulos, T.N. Grapsa, O. Ragos and M.N. Vrahatis,
On the computation of zeros of Bessel and Bessel-related functions,
1996, Proceedings of the Sixth International Colloquium on Differential Equations (1995, Plovdiv, Bulgaria), edited by D. Bainov, VSP, Netherlands, pp.409-417.

[P7]   F.A. Zafiropoulos, O. Ragos and M.N. Vrahatis,
Linearized viscoelastic wave propagation,
1996, Proceedings of the Sixth International Colloquium on Differential Equations (1995, Plovdiv, Bulgaria), edited by D. Bainov, VSP, Netherlands, pp.417-423.

[P8]   M.N. Vrahatis, O. Ragos and G.S. Androulakis,
A method for computing families of periodic orbits based on unconstrained optimization,
1999, Proceedings of the NATO Advanced Study Institute on Hamiltonian Systems with Three or More Degrees of Freedom (1995, S'Agaró, Spain), edited by C. Simó, NATO ASI Series, Series C, Vol.533, Kluwer Academic Publishers, Netherlands, pp.642-645.

[P9]   M.N. Vrahatis, O. Ragos, F.A. Zafiropoulos and E.C. Triantafyllou,
On the computation of all the equilibrium points in Hamiltonian systems with three degrees of freedom,
1999, Proceedings of the NATO Advanced Study Institute on Hamiltonian Systems with Three or More Degrees of Freedom
(1995, S'Agaró, Spain), edited by C. Simó, NATO ASI Series, Series C, Vol.533, Kluwer Academic Publishers, Netherlands, pp.638-641.

[P10] O. Ragos, E.A. Perdios, V.S. Kalantonis and M.N. Vrahatis,
On the equilibrium points of the relativistic restricted three-body problem,
2001, Nonlinear Analysis, 47(5), pp.3413-3418.
Proceedings of the Third World Congress of Nonlinear Analysts (2000, Catania, Italy), edited by V. Lakshmikantham.

[P11] E.A. Perdios, O. Ragos, A.E. Perdiou and M.N. Vrahatis,
Symmetric doubly asymptotic orbits in the photogravitational restricted three-body problem,
2001, Nonlinear Analysis, 47(5), pp.3443-3448.
Proceedings of the Third World Congress of Nonlinear Analysts (2000, Catania, Italy), edited by V. Lakshmikantham.

[P12] M.N. Vrahatis, O. Ragos and G.S. Androulakis,
Computing families of periodic orbits through optimization methods,
2001, Nonlinear Analysis, 47(5), pp.3449-3454.
Proceedings of the Third World Congress of Nonlinear Analysts (2000, Catania, Italy), edited by V. Lakshmikantham.

[P13] P. Tsoutsa, P. Fitsilis and O. Ragos,
Role modeling of IoT services in industry domains,
2018, IEEEACM New York, NY, USA
ACM Digital Library, doi 10.1145/3034950.3035002, pp. 290-295.
Proceedings of the International Conference on Management Engineering, Software Engineering and Service Sciences (2017), Wuhan, China.

[P14] G. Kostopoulos, S. Kotsiantis, O. Ragos, O. and T. Grapsa,
Early dropout prediction in distance higher education using Active Learning,
2018, IEEE Xplore Digital Library, doi 10.1109/IISA.2017.8316424
Proceedings of the 8th International Conference on Information, Intelligence, Systems and Applications (2017), Larnaca, Cyprus.

[P15] P. Fitsilis, P. Tsoutsa, L. Anthopoulos, O. Ragos,
Teamwork Behavior in Smart and Sustainable Cities Ecosystems, 2018
Proceedings of the Eighth International Conference on Advanced Collaborative Networks, Systems and Applications (2018), Venice, Italy.
https://www.thinkmind.org/index.php?view=instance&instance=COLLA+2018.

[P16] P. Tsoutsa, P. Fitsilis and O. Ragos,
Service simulation in Industry 4.0: A comparison of simulators
2018, International Scientific Journal "Industry 4.0", Year III, Issue 2, pp. 101-104.
Proceedings of the 3rd International Scientific Conference on Industry 4.0 (2018), Varna, Bulgaria.
https://stumejournals.com/journals/i4/2018/2/101.full.pdf.

[P17] M. Tsiakmaki, G. Kostopoulos, G. Koutsonikos, C. Pierrakeas, S. Kotsiantis and O. Ragos,
Predicting university students' grades based on previous academic achievements,
2019, IEEE Xplore Digital Library, pp. 1-6. doi: 10.1109/IISA.2018.8633618
Proceedings of the 9th International Conference on Information, Intelligence, Systems and Applications (2018), Zakynthos, Greece.

[P18] P. Tsoutsa, P. Fitsilis, and O. Ragos,
Enhancing teamwork of services.
2019, in "BIS 2018 International Workshops, Berlin, Germany, July 18–20, 2018, Revised Papers", W. Abramowicz and A. Paschke (Eds.), Springer, 2019, pp. 38-50.
Proceedings of the International Conference on Business Information Systems (2018), Berlin, Germany.

[P19] P. Tsoutsa and O. Ragos,
Towards an ontology for teamwork enabled services,
2020, ACM Digital Library, pp. 69-75, doi: 10.1145/3423390.3423395
Proceedings of the 4th International Conference on Algorithms, Computing and Systems (2020), Rabat, Morocco.

[P20] M. Tsiakmaki and O. Ragos,
A Case Study of Interpretable Counterfactual Explanations for the Task of Predicting Student Academic Performance,
2021, IEEE Xplore Digital Library, pp. 1-6. doi: 10.1109/CSCC53858.2021.00029
Proceedings of the 25th International Conference on Circuits, Systems, Communications and Computers Platanias, Chania, Crete Island, Greece (2021)

Publications in edited books

[C1] P. Tsoutsa, P. Fitsilis and O, Ragos,
Teamwork behavior: A review to interconnect Industry 4.0 entities,
2019, in "Technological Developments in Industry 4.0 for Business Applications", Luis Ferreira, Nuno Lopes, Joaquim Silva, Goran D. Putnik, Maria Manuela Cruz-Cunha and Paulo Silva Ávila (Eds), pp. 1-25, IGI Global, USA.
doi: 10.4018/978-1-5225-4936-9.ch001

[C2] G. Kostopoulos, M. Tsiakmaki, S. Kotsiantis and O. Ragos,
Deep Dense Neural Network for Early Prediction of Failure-Prone Students,
2020, in "Machine Learning Paradigms" Advances in Deep Learning-based Technological Applications, G. A. Tsihritzis. L. C. Jain (Eds),
Learning and Analytics in Intelligent Systems Vol.18, pp. 291-309, Springer, Switzerland.
doi: 10.1007/978-3-030-49724-8_13

Supervising of PhD Dissertations

1. G. Kostopoulos, Development of original algorithms of Machine Learning for use on educational data and in systems for educational content management, Department of Mathematics, University of Patras, 2020.

2. P. Tsoutsa, Modelling web service composition in Semantic Web, Department of Mathematics, University of Patras, 2021.
3. M. Tsiakmaki, New algorithms of Machine Learning for the deduction of knowledge from educational data, Department of Mathematics, University of Patras, 2021.

Refereeing
Reviewer in the international journals:
Computer Physics Communications,
Astrophysics and Space Science Journal,
The Journal of the Astronautical Sciences,
Advances in Space Research,
Journal of Astrophysics,
Journal of King Saud University – Science,
International Journal of Non-Linear Mechanics,
International Journal of Bifurcation and Chaos,
MDPI Applied Sciences (section: Computing and Artificial Intelligence),
International Journal on Information Technologies and Security,
Few-body Systems,
Biomedical Signal Processing and Control,
International Journal of Astronomy and Astrophysics,
Journal of Computational Science,
Children and Youth Services Review,
Data and Knowledge Engineering,
MDPI Mathematics (section: Engineering Mathematics).