

Short CV of Nicholas P. Karampetakis

Current Job responsibilities

Professor on “*Mathematical Theory of Automatic Control Systems*”, Department of Mathematics, Aristotle University of Thessaloniki, Thessaloniki, Greece (since 2014).

Main Interests

Polynomial-Algebraic Methods for the Analysis, Synthesis and Design of Linear Time Invariant Multivariable Systems, Computer Aided Control Systems Design, Feedback Control Systems, Mathematical System Theory, Matrix Theory, Symbolic Computations, Behavior Theory.

Educational background

B.Sc. in Mathematics (1985-1989) with excellence and Ph.D. in Mathematics (1989-1993) with excellence both from the Department of Mathematics of the Aristotle University Thessaloniki, Greece. The title of my Ph.D. thesis is “Notions of Equivalence for Linear Time Invariant Multivariable Systems” and my supervisor was Prof. Antonis Ioannis Vardoulakis.

Scholarships-Fellowships

Scholarships for undergraduate studies (1985-1988), postgraduate studies (1990-1993) and postdoctoral studies (1998-1999) from the Greek National Foundation. Fellowship (1991) from British Council, research studentship (1992) from Loughborough University of Technology and EPSRC grant from British Government.

Research experience

I have been participated, from 1991 till now, in 11 research programs, mainly supported by the Greek Government. The last one was in 2012-2015 (Program Archimedes III (No. 365 proposal, Acronym NSPMST) and the name of the program was «*Numerical and Symbolic Polynomial Methods for Mathematical Systems Theory*».

Teaching experience

I usually taught *undergraduate courses* in Computer Programming and Classical and Modern Control Theory and *postgraduate courses* in Optimal Control Theory, Computer aided analysis and synthesis of linear systems, Discrete Time Systems, Analysis and Synthesis of Linear Multivariable Systems.

Administration

Apart of many administration responsibilities that I have in the past, I have been (2011-2012) Director of the Department of Computer Science and Numerical Analysis and the Computer Laboratory of the Department of Mathematics and (2013-2017) Head of the School of Mathematics of the Aristotle University of Thessaloniki. Recently I am the Director of the Computer Laboratory of the Department of Mathematics of the Aristotle University of Thessaloniki.

Supervision of dissertations

I have been till now a supervisor of 3 finished Ph.D. thesis (Dimitris Varsamis (2012), Anastasia Gregoriadou (2013), Lazaros Moysis (2017) and Kafetzis Ioannis (2022)) and more than 50 M.Sc.

thesis. 4 Ph.D. students are under my supervision at this moment. Apart of this, I have been in Internal/External Committee of enough Ph.D. holders.

Editorial Board

I am Associate Editor to the journal *Multidimensional Systems and Signal Processing, Systems Science*, Editor to the open access journal *Systems Science and Control Engineering*, Associate Editor to the open access journal *International Journal of Circuits, Systems and Signal Processing*, whereas I have been for many years Associate Editor to the International Journal of Applied Mathematics and Computer Science. I am a member of the IEEE Control Systems Society Technical Committee on Computational Aspects of Control System Design (TC-CACSD) and member of the Technical Committee of the International Federation of Automatic Control (IFAC) on Linear Systems.

Reviewer

I have been a reviewer to about 30 International Journals and about 40 International Conferences. Apart of this, I am a reviewer in **Zentralblatt fur Mathematik** (135 journal papers and 9 books) and in the American Mathematical Society) (72 journal papers).

Participation in the organization of invited sessions in International Workshops-Conferences

I organized about 10 invited sessions in International Conferences (MED'03, MED'04, MED'05, CACSD'06, ECC'07, CCCA'11, MED'13). I have been at the International Committee of at least 22 International Conferences. Recently I have received with my Ph.D. student Karathanasi Sofia the Best Paper award in CODIT'2017. On 2018, I am the General Co-Chair of the 5th International Conference on Control, Decision and Information Technologies (CODIT'18) that will be held on April 10-13, 2018 at Thessaloniki, Greece

Papers published in International Journals

I am the author/co-author of about 60 international journal papers, 80 international conference papers and 4 books (in Greek). Scopus include 93 cited documents from my work with 168 citations (excluded self-citations), with the more recent ones (2015-2017) the following:

1. I.S. Kafetzis & N.P. Karampetakis (2022), On the algebraic structure of the Moore–Penrose inverse of a polynomial matrix, *IMA Journal of Mathematical Control and Information* 39 (2), 443-459.
2. G. Pechlivanidou, N. Karampetakis, 2022, Zero-order hold discretization of general state space systems with input delay, *IMA Journal of Mathematical Control and Information* 39 (2), 708-730.
3. I. S. Kafetzis & N. P. Karampetakis (2019): On conditions guaranteeing two rational matrices possess identical pole/zero structure, *International Journal of Control*, DOI: 10.1080/00207179.2019.1612095
4. Moysis, Lazaros; Karampetakis, Nicholas P. Algebraic methods for the construction of algebraic-difference equations with desired behavior. *Electron. J. Linear Algebra* 34(2018), 1–17.
5. Moysis, L., Karampetakis, N., Antoniou, E., 2017, Observability of linear discrete-time systems of algebraic and difference equations, *International Journal of Control*.

6. Moysis, L., Karampetakis, N.P., 2017, Construction of algebraic and difference equations with a prescribed solution space , *International Journal of Applied Mathematics and Computer Science*, 27(1), pp. 19-32
7. Moysis, L., Pantelous, A.A., Antoniou, E., Karampetakis, N.P., 2017, Closed form solution for the equations of motion for constrained linear mechanical systems and generalizations: An algebraic approach, *Journal of the Franklin Institute*, 354(3), pp. 1421-1445
8. Varsamis, D., Karampetakis, N., Mastorocostas, P., 2016, Transformations between two-variable polynomial bases with applications, *Applied Mathematics and Information Sciences*, 10(4), pp. 1303-1311.
9. Karampetakis, N., Construction of algebraic-differential equations with given smooth and impulsive behavior, *IMA Journal of Mathematical Control and Information* Volume 32, Issue 1, 20 August 2015, Pages 195-224