Curriculum Vitae

Dr. Vassilis C. Moulianitis

Professor
Mechanical Engineer
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General Information

I was born in Arta, Greece in December 19, 1973. I am married to Mrs. Ioanna Sampsoni. Foster father of Angeliki.

2004-05   Military Service: Reserved 2nd Lieutenant (Technical Corps) of the Hellenic Army. Participation in the operational training GORGO 2008 (Oct 13-17 2008).

Foreign spoken language: English.

UAS Pilot License (A, B, C) valid till 28/8/2022

Education

1991-96	**Mechanical Engineering Diploma**
	Department of Mechanical Engineering and Aeronautics, University of Patras.
	Diploma Thesis: «**Fuzzy logic control of robot manipulators**».
	Supervisor: N. A. Aspraagathos.
1996-2004	**Ph.D. Diploma**
	Department of Mechanical Engineering and Aeronautics, University of Patras.
	Title: "**Modeling of the conceptual design phase based in Artificial Intelligence techniques- Application to Mechatronics Design**".
	Supervisor: N. A. Aspraagathos.

Current Academic Occupation

Sep 2023- Today	Professor in the Dept of Mechanical Engineering, University of the Peloponnese.

Nov 2021- Sep 2023	Assistant Professor in the Dept. of Product and Systems Design Engineering, University of the Aegean (Permanent public servant).
Feb. 2008- Nov. 2021	Assistant Professor in the Dept. of Product and Systems Design Engineering, University of the Aegean.

WORK EXPERIENCE

2017-2019	Hellenic Open University, Teaching Staff, MSc "Quality Management and Technology"
Οκτ. 2005- Feb 2018	Adjunct Lecturer in the Dept. of Product and Systems Design Engineering, University of the Aegean.
Dec. 1999 – Feb 2018	Freelance Mechanical Engineer.
Jul. 1995- Sep. 1995	Internship in the Hydroelectric Station Pournari Arta.
Aug. 1992	Data supply in the data center of the Municipality of Arta.

TEACHING EXPERIENCE IN POST-SECONDARY EDUCATION.

1997-2003	Teaching in public Institutions of Professional Training in Patra and Arta, and in Hellenic Mathematic Society (Patras branch).

TEACHING EXPERIENCE

TEACHING

1st Sem 2019- Today	Physics for Engineers. Dept. of Product and Systems Design Engineering, University of the Aegean.
1st Sem 2018- Today	Mechatronics, Dept. of Product and Systems Design Engineering, University of the Aegean.
1st Sem 2019- Today	Design and Manufacturing Systems Dept. of Product and Systems Design Engineering, University of the Aegean
1st Sem 2019- Today	Studio 7b-Detail Product Design, Dept. of Product and Systems Design Engineering, University of the Aegean..
1st Sem 2019- Today	Vehicle Design and driver support technologies. Dept. of Product and Systems Design Engineering, University of the Aegean
2nd Sem 2018- Today	Computer Aided Design and Manufacturing of Products. Dept. of Product and Systems Design Engineering, University of the Aegean.
2nd Sem 2018- Today	Σχεδίαση και Τεχνολογίες Παραγωγής (Θ+Ε), Πανεπιστήμιο Αιγαίου, Τμήμα Μηχανικών Σχεδίασης προϊόντων και Συστημάτων.
2nd Sem 2018	Analysis and Design of Mechanisms, Dept. of Product and Systems Design Engineering, University of the Aegean.
1st Sem 2019- Today	MSc "Integrated Product Design and Innovation": Computer aided product analysis.
2nd Sem 2018- Today	MSc "Integrated Product Design and Innovation": Detail Design

2nd Sem 2018-Today	MSc "Integrated Product Design and Innovation": Materials and Manufacturing Technologies
1st Sem 2016-18	Teaching in post-graduate (MSc) study program "Integrated Product Design and Innovation"
2nd Sem 2015-16	Teaching in post-graduate (MSc) study program "Design of Interactive and Industrial Products and Systems"
Summer 2013, 2014	Summer School «Advanced technologies in Product Design, Engineering and Manufacturing» ACADEM 2013, 2014.
2nd Sem 2014-2nd Sem 2015	Computer Aided Design and Manufacturing of Products. Dept. of Product and Systems Design Engineering, University of the Aegean.
1st Sem 2010-30 June 2012	Physics for Engineers. Dept. of Product and Systems Design Engineering, University of the Aegean.
1st Sem 2009-30 June 2012	Robotics, Dept. of Product and Systems Design Engineering, University of the Aegean.
2nd Sem 2006-June 2016	Analysis and Design of Mechanisms, Dept. of Product and Systems Design Engineering, University of the Aegean.
2nd Sem 2005-June 2014	Systems Design, Dept. of Product and Systems Design Engineering, University of the Aegean.
2nd Sem 2014-2nd Sem 2015	Design and Manufacturing Systems Dept. of Product and Systems Design Engineering, University of the Aegean
2nd Sem 2005-2006 2nd Sem 2010-June 2012 1st Sem 2912-June 2017	Vehicle Design, Dept. of Product and Systems Design Engineering, University of the Aegean.
1st Sem 2005-1st Sem 2008 1st Sem 2013-June 2014	Production Design, Dept. of Product and Systems Design Engineering, University of the Aegean.
1st Sem 2005-June 2017	Mechatronics, Dept. of Product and Systems Design Engineering, University of the Aegean.
1st Sem 2002-1st Sem 2003	Expert Systems, Dept of Communications, Informatics & Management (Formerly known as Dept. Of Teleinformation and Management) TEI of Epirus
1st Sem 1998	Laboratory Exercises in AutoCAD, Mechanical Engineering and Aeronautics Dept. University of Patras.
1st Sem 1999-1st Sem 2002. and 1st Sem 2005-1st Sem 2010	Laboratory Exercises in Industrial Automation. Mechanical Engineering and Aeronautics Dept. University of Patras.
2nd Sem. 1997-2nd Sem 2002.	Laboratory Exercises in Robotics. Mechanical Engineering and Aeronautics Dept. University of Patras.

2nd Sem 1995- 2nd Sem 2002	Laboratory Exercises in Electrical Machines. Mechanical Engineering and Aeronautics Dept. University of Patras.

Thesis Supervising

Dept. of Product and Systems Design Engineering, University of the Aegean. (2018-2020)	Undergraduate: Supervisor in 20 Diploma Theses Member of the examination committee in 62 Diploma Theses. Postgraduate Supervisor in 7 Diploma Theses Member of the examination committee in 14 Diploma Theses.
Hellenic Open University 2017-2019	Postgraduate Supervisor in 5 Diploma Theses Member of the examination committee in 5 Diploma Theses.
Dept. of Product and Systems Design Engineering, University of the Aegean. (2005-2016)	Completed Supervisor in 18 Diploma Theses (2005-2011). Assistant Supervisor in 5 Diploma Theses (2011 -2016) Member of the supervising committee of 2 MSc Diploma Theses. Member of the examination committee in 54 Diploma Theses. Member of the examination committee in 1 MSc Diploma Thesis. Running Assistant Supervisor in 4 Diploma Theses. Assistant Supervisor in 1 MSc Diploma Thesis
Mechanical Engineering and Aeronautics Dept. University of Patras (2005-2016)	Completed Assistant Supervisor in 13 Fourth year and Diploma Theses. Running Assistant Supervisor in 13 Fourth year and Diploma Theses.
Mathematics Dept, University of Patras (2014-2016)	Completed Member of the supervising committee of 1 MSc Diploma Thesis. Member of the examination committee of 1 MSc Diploma Thesis.

PhD Supervision

Dept. of Product and Systems Design Engineering, University of the Aegean. (2018-Today)	Supervisor of 3 PhD Candidates Member of supervising committee of 6 PhD Candidates Member of examination committee of 1 PhD Candidate.

Administrative Work

2018-20	Member of 3 Committees (Dept Assembly Decisions: 3rd/24.10.2018, 17th/21.06.2018, 1st/26.09.2019, 2nd/06.11.2019)
2020-21	Member of 4 Committees (Dept Assembly Decisions 3rd/11.11.2020)

2021-22   Member of 7 Committees
             (Dept Assembly Decisions 12th/23.02.2022)

RESEARCH ACTIVITY

RESEARCH INTERESTS

My research interests are focused in the field of Mechatronics design with applications in robotics, robot kinematics, and in control systems with soft computing techniques. More specific:

- Metamorphic robots
- Kinematics of robot manipulators.
- Human-Robot Interaction
- Design of Mechatronic products and systems, with focus in the conceptual mechatronics design modeling.
- Robot controller design and mechatronic system design for lower limb correction systems.
- Mechatronic design of medical systems
- Design of robotic workcell and metamorphic manipulators
- Mechatronics design of grippers

In the above problems, knowledge-Based System, multiobjective optimization using soft computing techniques such as Fuzzy Logic, Neural networks, Genetic Algorithms and heuristic search methods are used.

RESEARCH PAPERS

- 32 papers in international journals. (1 submitted for publication).
- 3 editions of a special issue in Mechatronics, JoMaC and Robotica. Editorial in proceedings of RAAD 2018 Conference (2 Special Issue in preparation).
- 20 chapter books (1 submitted for publication).
- 46 papers in international and national conferences.

CITATIONS-AWARDS (JULY 2022)

	Google Scholar (Total)	**Scopus (Citations excluding self-citations)**	**Web of Science (Citations excluding self-citations)**
ID	scholar.google.gr/citations?user=4wywV-8AAAAJ&hl=en	6506258012	AAI-9286-2020
Citations	669	307	235
H-Index	13	9	9

The paper «**Suboptimal Anatomy of Metamorphic Manipulators Based on the High Rotational Dexterity»** achieved the «**Best Paper Award on Application of**

Metamorphic Mechanisms» in the 3rd IEEE/IFToMM International Conference on Reconfigurable Mechanisms and Robots 2015 (ReMAR2015).

The paper «**Cuspidality Investigation of a Metamorphic Serial Manipulator»** selected as a finalist in the «**Robotics and Mechatronics»** category in the 15o IFToMM World Congress on Mechanism and Machine Science (2019).

REVIEWER IN INTERNATIONAL JOURNALS AND CONFERENCES

- Journals: Mechatronics, ASME Journal of Mechanical Design, Journal of Systems and Control Engineering, Journal of Engineering Design, IPSI BgD Transactions on Internet Research, Information Sciences, Information Sciences, WSEAS Information sciences and applications, Journal of Mechanical Engineering Science, JJMIE, IJAAC, IJHISI, Journal of Robotics, The Open Automation and Control Systems Journal, Scientia Iranica, IEEE Transactions on Neural Networks and Learning Systems, Journal of Robotics, Mechanism and Machine Theory, Paladyn Journal of Behavioral Robotics, JoMAC, Cogent Engineering, Journal of Computational Methods in Sciences and Engineering, International Journal of Robotic Engineering, Robotica, ASME Journal of Mechanisms and Robotics, MDPI (Multimodal Technologies and Interaction, Mathematics, Sustainability, Actuators, Applied Sciences, Robotics, Sensors, Electronics) , Manufacturing Review.
- Conferences: European Control Conference '07, 1st and 2nd Hellenic Robotics Conference, CGI 2013, MED 2013, GDSPM2015, ICINCO '15 and '16, ICTAI 15, World Congress '15, ISRM '15, ReMAR 2015, SYROCO '15, EUCOMES '16, MSM '16, RAAD '18, ReMAR '18,, MEDER '18, ICINCO '18, IFToMM World Congress '19, ICINCO '19, RAAD '20, ICINCO '20, IFIT '20, CoDIT '20, MSM '20.

EVALUATOR OF RESEARCH PROPOSALS

- Graduate Updating Knowledge Program (ΠΕΓΑ) of Ministry of Education, Lifelong Learning and Religious Affairs, Greece (2012).
- Two proposals evaluation for Croatian Science Foundation (HRZZ) (2015-2016).
- Proposal evaluation for HFRI (2020)
- Proposal evaluation for GSRK (2020)

SUMMER SCHOOL ORGANIZATION

- Member of the organizing committee of the summer school entitled "Advanced technologies in Product Design, Engineering and Manufacturing", University of the Aegean, held in Syros 1 - 11 July, 2013.

ORGANIZING COMMITTEES

- Member of the organizing committee of the 1st Hellenic Robotics Conference.
- Member of the organizing committee of the 2nd Hellenic Robotics Conference.

- Member of the organizing committee of the summer school "Advanced technologies in Product Design, Engineering and Manufacturing". Dept. of Product and Systems Design Engineering, University of the Aegean (2013).
- Member of the organizing committee of the invited session "MDE of mechatronic products, processes and resources for intelligent evolving CPPS" in IFAC World Congress 2017
- Member of the organizing committee of RAAD 2018 conference

CONFERENCE CHAIRS

- RAAD 2018: "SS: Applications of UAV on Aerial Inspection and Environmental Monitoring" (Co-Chair).
- World Congress 2017: «MDE of mechatronic products, processes and resources for intelligent evolving CPPS» (Co-chair).
- World Congress 2017: «Mechatronics, Robotics and Components - Robotics - Interactive 1»» (Co-chair).

PARTICIPATION IN RESEARCH PROJECTS

I am participating in the research projects and proposal preparation in International and National funded research projects since 1997. I was the major researcher in two national and two international project:
- INCO-COPERNICUS 96/4438. "HOMER-Handling of non-rigid materials with robots." 1997-2000.
- Pythagoras II. "Development of a methodology for the systematic mechatronic design. Application in an intelligent system for the design of robot grippers."2005-2007.
- Regional Operational Programme of Western Greece. "Computation Intelligent methods development for the rehabilitation of lower limbs." 2006-2008.
- Conceptual Design of a motion capture system. July-October 2016.
- HFRI: "Design and Development of a Reconfigurable Metamorphic Manipulator System" (2018-2022). Coordinator.
- GSRK: "Development of an innovative integrated system for estimating the potential of methane biochemical production (BMP) from different biomass sources.", (2018-2022), Vice Coordinator/Researcher
- Interreg Balkan-MED (2017-2020)"Forest Monitoring System for Early Fire Detection and Assessment in the Balkan-Med Area". Researcher.

MEMBERSHIPS

- Technical Chamber of Greece (TEE).
- Hellenic Association of Mechanical and Electrical Engineers (ΠΣΔΜ-Η).
- Member of the Technical Committee for Robotics and Mechatronics (IFToMM).

PAPERS

INTERNATIONAL JOURNALS

1.1. **V.C. Moulianitis**, A. J. Dentsoras and N. A. Aspragathos (1999). A knowledge-based system for the conceptual design of grippers for handling fabrics. *Artificial Intelligence in Engineering, Design, Analysis and Manufacturing*, 13, 13-25.

1.2. **V.C. Moulianitis**, N. A. Aspragathos and A. J. Dentsoras . A model for concept evaluation in design- An application to mechatronics design of robot grippers. Mechatronics 14 (2004) 599–622.

1.3. P. Azariadis, **V. Moulianitis**, S. Alemany, J. C. González, P. de Jong, M. van der Zande and D. Brands. Virtual Shoe Test Bed: A Computer-Aided Engineering Tool for Supporting Shoe Design, Computer Aided Design And Applications, 2007, 4(6), 741-750.

1.4. Philip Azariadis, **Vassilis Moulianitis**, Jose Olaso, Sandra Alemany, Juan Carlos González Pamela de Jong, Par Dunias, Marc van der Zande and Dave Brands. An innovative virtual-engineering system for supporting integrated footwear design. Int. J. Intelligent Engineering Informatics, Vol. 1, No. 1, 2010.

1.5. R. F. Hamade, **V.C. Moulianitis**, D. D'Addonna, G. Beydoun. A dimensional tolerancing knowledge management system using Nested Ripple Down Rules (NRDR). Engineering Applications of Artificial Intelligence 23 (7), pp. 1140-1148, 2010.

1.6. Dimitris Oikonomou; **Vassilis Moulianitis**; Dimitris Lekkas, Panayiotis Koutsabasis. DSS for Health Emergency Response: A Contextual, User-Centred Approach. International Journal of User-Driven Healthcare (IJUDH), 1, 2, pp. 39-56, 2011. Also, appeared in Clinical Solutions and Medical Progress through User-Driven Healthcare. IGI Global, 2013. 51-69

1.7. Charalampos Valsamos, **Vassilis Moulianitis**, Nikos Aspragathos. Index based optimal anatomy of a metamorphic manipulator for a given task. Robotics and Computer-Integrated Manufacturing 28 (4), pp. 517-529, 2012

1.8. Nikos Giannopoulos, **Vasilis C. Moulianitis** and Andreas C. Nearchou, Multi-objective optimization with fuzzy measures and its application to flow-shop scheduling, Engineering Applications of Artificial Intelligence 25(7), pp. 1381-1394, 2012.

1.9. Fotios Dimeas, Dhionis V Sako, **Vassilis C Moulianitis** and Nikos A Aspragathos. Design and fuzzy control of a robotic gripper for efficient strawberry harvesting. Robotica FirstView:1–14, May 2014.

1.10. C Valsamos, **V Moulianitis** and N Aspragathos. Kinematic Synthesis and Evaluation of Structure Topologies for Metamorphic Serial Manipulators. Journal of Mechanisms and Robotics 6(4), 2014.

1.11. Konstantopoulos, N., Syrimpeis, V., Moulianitis, V., Panaretou, I., Aspragathos, N., & Panagiotopoulos, E. (2014). A Smart Card Based Software System for Surgery Specialties. International Journal of User-Driven Healthcare (IJUDH), 4(1), 48-63. Also appeared, in Healthcare Ethics and Training: Concepts, Methodologies, Tools, and Applications IGI Global , 2017, 394-409.

1.12. Synodinos, A. I., **Moulianitis, V. C.,** & Aspragathos, N. A. (2015). A fuzzy approximation to dexterity measures of mobile manipulators. Advanced Robotics, 29(12), 753-769.

1.13. C Valsamos, **V C Moulianitis**, A I Synodinos and N A Aspragathos (2015). Introduction of the high performance area measure for the evaluation of metamorphic manipulator anatomies. Mechanism and Machine Theory 86:88 - 107.

1.14. Moulianitis, V. C., Synodinos, A. I., Valsamos, C. D., & Aspragathos, N. A. (2016). Task-based optimal design of metamorphic service manipulators. Journal of Mechanisms and Robotics, 8(6).

1.15. V.N. Syrimpeis, **V.C. Moulianitis**, N.A. Aspragathos & E.C. Panagiotopoulos. A (2017) knowledge based system for the selection of muscles for gait phase detection using EMGs, International Journal of Healthcare Information Systems and Informatics 12(2), pp. 18-45.

1.16. **Moulianitis, V. C.,** Zachiotis, G. A., & Aspragathos, N. A. (2018). A new index based on mechatronics abilities for the conceptual design evaluation. Mechatronics, 49, 67-76.

1.17. Dimeas, F., **Moulianitis, V. C.,** & Aspragathos, N. (2018). Manipulator performance constraints in human-robot cooperation. Robotics and computer-integrated manufacturing, 50, 222-233.

1.18. C. Valsamos, A. Wolniakowski, K.Miatliuk and **V.C. Moulianitis** (2019), Optimal Placement of a Kinematic Robotic Task for the Minimization of Required joint velocities. International Journal of Mechanics and Control, 20, 1, 3-14.

1.19. Kritikou, G., Aspragathos, N., & **Moulianitis, V**. (2019). Algorithms for the Motion of Randomly Positioned Hexagonal and Square Microparts on a "Smart Platform" with Electrostatic Forces and a New Method for Their Simultaneous Centralization and Alignment. Micromachines, 10(12), 874.

1.20. Sharkawy, A. N., Papakonstantinou, C., Papakostopoulos, V., **Moulianitis, V. C.,** & Aspragathos, N. (2020). Task Location for High Performance Human-Robot Collaboration. Journal of Intelligent & Robotic Systems, 1-20.

1.21. Koukos-Papagiannis, C., **Moulianitis, V.,** & Aspragathos, N. (2020). Classification of All Non-Isomorphic Regular and Cuspidal Arm Anatomies in an Orthogonal Metamorphic Manipulator. Robotics, 9(2), 20.

1.22. Miatliuk, K, Nawrocka, A., Holewa, K., **Moulianitis, V.** (2020). Conceptual Design of BCI for Mobile Robot Control, Applied Sciences, 10 (7), 2557.

1.23. Xidias, E., **Moulianitis, V.,** & Azariadis, P. (2020). Optimal robot task scheduling based on adaptive neuro-fuzzy system and genetic algorithms. The International Journal of Advanced Manufacturing Technology, 1-13.

1.24. Stravopodis, N. A., and **V. C. Moulianitis** (2021). "Rectilinear tasks optimization of a modular serial metamorphic manipulator." Journal of Mechanisms and Robotics 13, no. 1

1.25. Katsanis, Ilias A.; **Moulianitis, Vassilis C.** (2021). An Architecture for Safe Child–Robot Interactions in Autism Interventions. *Robotics* 10, no. 1: 20

1.26. Wolniakowski A, Valsamos C, Miatliuk K, **Moulianitis V**, Aspragathos N. (2021) Optimization of Dynamic Task Location within a Manipulator's Workspace for the Utilization of the Minimum Required Joint Torques. *Electronics*; 10(3):288.

1.27. Jimeno-Morenilla, A., Azariadis, P., Molina-Carmona, R., Kyratzi, S., & **Moulianitis, V.** (2021). Technology enablers for the implementation of Industry 4.0 to traditional manufacturing sectors: A review. Computers in Industry, 103390.

1.28. Kampouris, C., Azariadis, P., **Moulianitis, V.** (2021) A methodology for assessing the impact of error components in gait analysis using closed-loop testing on a biomimetic rig. Frontiers in Artificial Intelligence and Applications, 338, art. no. 21-30, pp. V-VI.

1.29. Valsamos, C., Stravopodis, N., **Moulianitis, V.C.** (2021). Mechatronic design and construction of a novel 1 dof link for the structuring of serial self-metamorphic manipulators International Journal of Mechanics and Control, 22 (2), pp. 181-193.

1.30. Stravopodis, N., Valsamos, C., & **Moulianitis, V. C.** (2022). Experimental verification of optimized anatomies on a serial metamorphic Manipulator. Sensors, 22(3), 918.

1.31. Papakonstantinou, C., Daramouskas, I., Lappas, V., **Moulianitis, V. C.,** & Kostopoulos, V. (2022). A Machine Learning Approach for Global Steering Control Moment Gyroscope Clusters. Aerospace, 9(3), 164.

1.32. Katsanis, I. A., **Moulianitis, V. C.,** & Panagiotarakos, D. T. (2022). Design, Development, and a Pilot Study of a Low-Cost Robot for Child–Robot Interaction in Autism Interventions. Multimodal Technologies and Interaction, 6(6), 43.

Under review

1.33. C. Valsamos, K.Miatliuk, A. Wolniakowski, **V. C. Moulianitis**, N. Aspragathos (2022). Optimal kinematic task position determination. Application and experimental verification for the UR-5 manipulator. Submitted for publication in Applied Sciences.

BOOK CHAPTERS

2.1. **V.C. Moulianitis**, N. A. Aspragathos and A. J. Dentsoras (2008). Fuzzy Representation and Synthesis of Concepts in Engineering Design. Lecture Notes in Artificial Intelligence 5138, 160-172. (CP)

2.2. H. Valsamos, **V. Moulianitis**, N. Aspragathos (2010), Rapid Evaluation of Reconfigurable Robots Anatomies using Computational Intelligence. Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) 6277 LNAI (PART 2), pp. 341-350. (CP)

2.3. Charalampos Valsamos, **Vassilis C. Moulianitis** and Nikos Aspragathos (2012), Metamorphic Structure Representation - Designing and Evaluating Anatomies of Metamorphic Manipulators, Advances in Reconfigurable Mechanisms and Robots I, Part 1, 3-11. (CP)

2.4. **V C Moulianitis** and N A Aspragathos (2014). IT and Mechatronics in Industrial Robotic Workcell Design and Operation. In Encyclopedia of Information Science and Technology. IGI Global.

2.5. **Vassilis C Moulianitis**, Evgenios M Kokkinopoulos and Nikos A Aspragathos (2016). A Method for the Approximation of the Multiple IK Solutions of Regular Manipulators Based on the Uniqueness Domains and Using MLP. In Saïd Zeghloul, Med Amine Laribi and Jean-Pierre Gazeau (eds.). Robotics and

Mechatronics. Mechanisms and Machine Science series, volume 37, Springer International Publishing, 273-281. (CP)

2.6. **V.C. Moulianitis**, N.A. Aspragathos, C Valsamos (2016). Suboptimal anatomy of metamorphic manipulators based on the high rotational dexterity Advances in Reconfigurable Mechanisms and Robots II, 509-519. (CP)

2.7. **Moulianitis, V.,** Vogiatzief, D. and Aspragathos, N., (2017). A Constructive Method for the Approximation of the Multiple Inverse Kinematics Solutions of Noncuspidal 6 DoF Manipulators. In New Trends in Mechanism and Machine Science (pp. 493-502). Springer International Publishing. (CP)

2.8. **Moulianitis, V.C.,** Katrantzis, E.F., Stravopodis, N.A., Aspragathos, N.A (2018). A comparative study of three manipulator performance measures Mechanisms and Machine Science, 49, pp. 19-27. (CP)

2.9. Valsamos, C., Wolniakowski, A., Miatliuk, K., **Moulianitis, V.C** (2019). Minimization of joint velocities during the execution of a robotic task by a 6 D.o.F. articulated manipulator. Mechanisms and Machine Science, 67, pp. 368-375. (CP)

2.10. **Moulianitis, V.C.,** Thanellas, G., Xanthopoulos, N., Aspragathos, N.A. (2019) Evaluation of UAV based schemes for forest fire monitoring, Mechanisms and Machine Science, 67, pp. 143-150. (CP)

2.11. **Moulianitis, V.C.,** Xidias, E., Azariadis, P. Optimal task placement in a metamorphic manipulator workspace in the presence of obstacles (2019) Mechanisms and Machine Science, 67, pp. 359-367. (CP)

2.12. Koukos-Papagiannis, C. K., Moulianitis, V. C., & Aspragathos, N. A. (2019, June). Cuspidality Investigation of a Metamorphic Serial Manipulator. Mechanisms and Machine Science 73, pp. 2491-2500. (CP)

2.13. Nikos Aspragathos, Eleftherios Dogkas, Pavlos Konstantinidis, Panagiotis Koutmos, Nefeli Lamprinou, Vassilis C. Moulianitis, Georgios Paterakis, Emmanouil Z. Psarakis, Evangelos Sartinas, Konstantinos Souflas, Georgios Thanellas, Georgios Tsiourlis, Nikitas Xanthopoulos and Panteleimon Xofis (2019). From Pillars to AI Technology-Based Forest Fire Protection Systems [Online First], IntechOpen, DOI: 10.5772/intechopen.86904. Available from: https://www.intechopen.com/online-first/from-pillars-to-ai-technology-based-forest-fire-protection-systems

2.14. Tzivaridis, M., **Moulianitis, V.C.,** Aspragathos, N.A. (2020) Approximation of Inverse Kinematic Solution of a Metamorphic 3R Manipulator with Multilayer Perceptron, Advances in Intelligent Systems and Computing, 980, pp. 43-50. (CP)

2.15. Stravopodis, N.A., Valsamos, C., **Moulianitis, V.C.** (2020), An Integrated Taxonomy and Critical Review of Module Designs for Serial Reconfigurable Manipulators Advances in Intelligent Systems and Computing, 980, pp. 3-11. (CP)

2.16. Katrantzis, Eleftherios, **Vassilis C. Moulianitis**, and Kanstantsin Miatliuk (2020), Conceptual Design Evaluation of Mechatronic Systems, Emerging Trends in Mechatronics. IntechOpen, 27-50.

2.17. Stravopodis N.A., Katrantzis L., **Moulianitis V.C.,** Valsamos C., Aspragathos N.A. (2020) Evaluation of Serial Metamorphic Manipulator Structures Considering Inertia Characteristics. In: Zeghloul S., Laribi M., Sandoval Arevalo J. (eds)

Advances in Service and Industrial Robotics. RAAD 2020. Mechanisms and Machine Science, vol 84. Springer, Cham. (CP)

2.18. Katsanis I.A., **Moulianitis V.C.** (2020) Criteria for the Design and Application of Socially Assistive Robots in Interventions for Children with Autism. In: Zeghloul S., Laribi M., Sandoval Arevalo J. (eds) Advances in Service and Industrial Robotics. RAAD 2020. Mechanisms and Machine Science, vol 84. Springer, Cham. (CP)

2.19. Stravopodis, N. A., **Moulianitis, V. C.,** & Valsamos, C. (2021). Investigation of Dynamically Decoupled Anatomies for a Serial Metamorphic Manipulator. Advances in Italian Mechanism Science, Springer, Cham, 295-309. (CP)

2.20. Stravopodis, N., **Moulianitis, V.C.** (2022). Anatomy Categorization of a Serial Metamorphic Manipulator for Optimized Robust Controller Performance. In: Müller, A., Brandstötter, M. (eds) Advances in Service and Industrial Robotics. RAAD 2022. Mechanisms and Machine Science, vol 120. Springer, Cham (CP)

Under review

2.21. Charalampos Valsamos, Nikolaos Stravopodis, Vassilis Moulianitis, Nikos A. Apsragathos (2020), Metamorphic Manipulators. Submitted for publication in "Robot design: from theory to service applications", Cambridge University Press

CONFERENCES (FULL PAPER)

INTERNATIONAL

3.1.1. **Moulianitis V. C.**, C. J. Tsaprounis, N. A. Aspragathos (1997). On-line gain adjustment of a robot controller, using fuzzy logic. Fifth IFAC Symposium on Robot Control 1997 Nantes France, 2, 385-390.

3.1.2. **Moulianitis V.C.**, A. J. Dentsoras & N. A. Aspragathos (1998). "A Search Method in Knowledge-Based Systems using Euclidean Space Norm - An Application to Design of Robot Grippers", AIENG '98, Galway, Ireland, 247-260.

3.1.3. **VC Moulianitis**, AJ Dentsoras, NA Aspragathos (1999)." The Euclidean Space Inner Product in a Heuristic Method for Knowledge-Based Conceptual Design of Robot Grippers". CACD' 99, Lancaster, UK 37-48.

3.1.4. **V. C. Moulianitis**, Z. Zoller, P. Zentay, N. A. Aspragathos, G. Arz, A. Toth (2000), Knowledge-Aided Conceptual Design of Grippers for Handling Polyurethane Foam Parts. UMTIK' 2000, Ankara, Turkey, (CD-ROM).

3.1.5. P.N. Politis, **V. C. Moulianitis**, N. A. Aspragathos (2001). Robot control based on coriolis and centrifugal terms fuzzification. ASME International Mechanical Engineering Congress and Exposition, Proceedings v 2 2001. Also in American Society of Mechanical Engineers, Dynamic Systems and Control Division (Publication) DSC v 70 2002. p 1041-1048

3.1.6. S. G. Papageorgiou, **V. C. Moulianitis**, N. A. Aspragathos (2003). Transfer VM concepts to cloth design and manufacturing, Eurasia-Tex Conference on 3D Body Scanning and Virtual Try-On Systems, Athens, pp 41-49, Nov 2003.

3.1.7. **Moulianitis V. C.** and Aspragathos N. A. (2006) Design Evaluation with Mechatronics index using the Discrete Choquet Integral. Mechatronics 2006,

4th IFAC-Symposium on Mechatronic Systems, Heidelberg, Germany, September 12th-14th.

3.1.8.   **V. Moulianitis**, K. Saridakis, S. Papageorgiou, V. Syrimpeis, A. Dentsoras, N. Aspragathos (2007), Application of soft computing techniques in the design of robot grippers, International Conference on Engineering Design, ICED'07, 28 - 31 August 2007, Cite Des Sciences Et De L'Industrie, Paris, France, 2007.

3.1.9.   V.N. Syrimpeis, L.L. Chiou, **V.C. Moulianitis**, N.A. Aspragathos, E.C Panagiotopoulos (2007). On the development of an implantable μ-biomechatronic system for the rehabilitation of lower limb neuro-muscular disabilities. Third international conference on Multi-Material Micro Manufacturing, Borovets Bulgaria, 359-362.

3.1.10. **V.C. Moulianitis**, V.N. Syrimpeis, V. Kokkinos, N.A. Aspragathos, E.C. Panagiotopoulos (2008). A Closed-Loop Drop-Foot Correction System with Gait Event Detection using Fuzzy Logic, Mechatronics 2008, Limerick, Ireland.

3.1.11. A.D. Louloudi, **V.C. Moulianitis** (2008). TherapainiS –A socially assistive robot for the elders. The 2008 I*PROMS Conference on Innovative Production Machines and Systems, Also invited to be presented in 2008 I*PROMS Researcher Symposium, Cardiff, 2008.

3.1.12. **V.C. Moulianitis**, V.N. Syrimpeis, N.A. Aspragathos E.C. Panagiotopoulos (2009). An Expert System for Supporting the Conceptual Design of Controllers for Lower Limbs Rehabilitation Systems. IEEE 17th Mediterranean Conf. on Control and Automation. June 24-26, 2009, Makedonia Palace, Thessaloniki, Greece.

3.1.13. H. Valsamos **V. Moulianitis** N. Aspragathos (2009), A Generalized Method for Solving the Kinematics of 3 D.O.F. Reconfigurable Manipulators, The 2009 I*PROMS Conference on Innovative Production Machines and Systems.

3.1.14. H. Valsamos **V. Moulianitis** N. Aspragathos (2011). Rapid evaluation of anatomies for metamorphic robots based on dynamic manipulability using an ANFIS system. Multibody Dynamics 2011, ECCOMAS, July 4-7 2011, Brussels, Belgium.

3.1.15. **Vassilis C. Moulianitis**, Vasileios N. Syrimpeis, Nikolaos A. Aspragathos and Elias C. Panagiotopoulos (2011). A Closed-Loop Drop-Foot Correction System with Gait Event Detection from the Contralateral Lower Limb using Fuzzy Logic, 10th International Workshop on Biomedical Engineering, 5-7 October 2011, Kos Island, Greece.

3.1.16. Fotios Dimeas, Dhionis V. Sako, **Vassilis C. Moulianitis** and Nikos A. Aspragathos (2013). Towards designing a robot gripper for efficient strawberry harvesting. In RAAD 2013. 2013, 220-226.

3.1.17. I. Papanikolaidi, A. Synodinos, **V.C. Moulianitis**, N. Aspragathos, E.K. Xidias (2013). Optimal Base placement of the Da Vinci System based on the Manipulability Index. In RAAD 2013. 2013, 262-268.

3.1.18. **Vassilis C. Moulianitis**, Nikos A Aspragathos, Aris I Synodinos and Charalampos D. Valsamos (2014).Task-based optimal design of serial metamorphic manipulators. Accepted for presentation in ICRA 2014 WS Task Based Optimal Design of Robots, 2014.

3.1.19. Fotios Dimeas, **Vassilis C Moulianitis**, Charalampos Papakonstantinou and Nikos Aspragathos (2016). Manipulator Performance Constraints in Cartesian

Admittance Control for Human-Robot Cooperation. In IEEE International Conference on Robotics and Automation, 2016, 3049-3054.

3.1.20. Charalampos Valsamos, **Vassilis Moulianitis** and Nikos Aspragathos (2016). Experimental verification of the advantages of a modular open chain metamorphic manipulator. In 47th International Symposium on Robotics (ISR2016), 2016, 215-221.

3.1.21. **Moulianitis, V.C.,** Zachiotis, G., Valsamos, C., Aspragathos, N.A. Evaluation of manipulators under CPPS frame (2017) IFAC-PapersOnLine, 50 (1), pp. 4342-4347.

3.1.22. Frisyras, E. K., **Moulianitis, V. C.,** & Aspragathos, N. A. (2018). ANNs to approximate all the inverse kinematic solutions of non-cuspidal manipulators. 12th IFAC Symposium on Robot Control SYROCO 2018, Budapest, Hungary, 27–30 August 2018, IFAC-PapersOnLine, 51(22), 418-423.

3.1.23. E. F. Katrantzis, N. A. Aspragathos, C. D. Valsamos and **V. C. Moulianitis** (2018), Anatomy Optimization and Experimental Verification of a Metamorphic Manipulator, *2018 International Conference on Reconfigurable Mechanisms and Robots (ReMAR)*, Delft, 1-7. doi: 10.1109/REMAR.2018.8449880.

3.1.24. Georgios Thanellas, **Vassilis C Moulianitis** and Nikos A Aspragathos (2019). A spatially wind aware quadcopter (UAV) path planning approach. 10th IFAC Symposium on Intelligent Autonomous Vehicles , Gdansk 2019, IFAC-PapersOnLine, Volume 52, Issue 8, 2019, Pages 283-288.

3.1.25. Dimitrios Klaoudatos, **Vassilis Moulianitis**, N. Aspragathos (2019). Development of an Experimental Strawberry Harvesting Robotic System, ICINCO 2019 - Proceedings of the 16th International Conference on Informatics in Control, Automation and Robotics 2, pp. 437-445

3.1.26. Nikos Aspragathos, Eleftherios Dogkas, Panagiotis Koutmos, Georgios Paterakis, Konstantinos Souflas, Georgios Thanellas, Nikitas Xanthopoulos , Nefeli Lamprinou, Emmanouil Z. Psarakis, Evangelos Sartinas, Dimitrios Katsaros, Stefanos Michos, Anastasios Kanavos, **Vassilis C. Moulianitis** (2019). THEASIS System for Early Detection of Wildfires in Greece: Preliminary Results from its Laboratory and Small Scale Tests. 29th Annual Conference of the European Association for Education in Electrical and Information Engineering (EAEEIE) 2019, 4-6 September, University of Ruse Ruse, Bulgaria

3.1.27. Stravopodis, Nikolaos, Eleftherios Katrantzis, Charalampos Valsamos, and **Vassilis C. Moulianitis** (2020). "Conceptual Mechatronic Design of a Metamorphic Manipulator's Pseudojoints." In 2020 International Conference Mechatronic Systems and Materials (MSM), pp. 1-6. IEEE.

3.1.28. Papadopoulou, Joanna; Papakostopoulos, Vassilis; **Moulianitis, Vassilis C.** (2021), Re-design of a motorcycle helmet for use in urban traffic: Conceptual design and testing. Proceedings of the Design Society 1, 2531-2540.

NATIONAL

3.2.1. Χ.Δ. Βάλσαμος, **Β.Χ. Μουλιανίτης**, Ν.Α. Ασπράγκαθος. Δείκτης αξιολόγησης ανατομιών μεταμορφικού ρομποτικού βραχίονα και υπολογισμός αυτού

μέσω συστήματος ANFIS. 2ο Πανελλήνιο Συνέδριο Ρομποτικής, 9-10 Δεκεμβρίου 2010 Πάτρα, 2010.

3.2.2. Χ.Δ. Βάλσαμος, **Β.Χ. Μουλιανίτης**, Ν.Α. Ασπράγκαθος. Διαμόρφωση ανατομίας μεταμορφικού βραχίονα – Βέλτιστη τοποθέτηση εργασίας στο χώρος εργασίας αυτού. Μια συγκριτική μελέτη. 2ο Πανελλήνιο Συνέδριο Ρομποτικής, 9-10 Δεκεμβρίου 2010 Πάτρα, 2010.

Conferences (abstract-Based) – Posters

International

4.1.1. Repoulias F. D., **Moulianitis V. C.**, N. A. Aspragathos (1998). On-line parameter estimation of a robot controller, using fuzzy logic. IFAC LSS 1998 Rio Patras, 1120-1125.

4.1.2. **V. C. Moulianitis**, N. A. Aspragathos, A. J. Dentsoras (2001). An Index for the Mechatronic Design of Systems and Products. ASME, First National Conference on Recent Advances in Mechanical Engineering 2001, Patra, Greece (CD-ROM).

4.1.3. **V.C.Moulianitis** and N.A Aspragathos (2002). Integration of complexity in a mechatronics index. Mechatronics 2002, Twente, The Netherlands, 1494-1502.

4.1.4. Syrimpeis V.N., **Moulianitis V.C.**, Zerikiotis E.I., Aspragathos N.A., Panagiotopoulos E.C.(2006) An approach for the development of a fuzzy logic controller for the correction of the Drop-Foot syndrome. 5th World Congress of Biomechanics July 29 – August 4, 2006, Munich, Germany. Also in Journal of Biomechanics, Volume 39, Supplement 1, 2006, Page S31.

4.1.5. Syrimpeis V. N., **Moulianitis V. C.**, Zerikiotis E. I., Aspragathos N. A. and Panagiotopoulos E. C.(2006). A Drop-Foot syndrome correction system based in Fuzzy Logic. 5th European Symposium on BioMedical Engineering ESBME 2006.

4.1.6. Syrimpeis, Vasileios N., **Moulianitis, Vasileios C.**, Aspragathos, Nikolaos A., Panagiotopoulos, Elias C. (2006), A study of human locomotion for the design of rehabilitation systems based on Fuzzy Logic. 1st Joint ESMAC - GCMAS Meeting (JEGM06) Amsterdam, the Netherlands, September 28-30, 2006, Also in Gait & Posture,Volume 24, Supplement 2, 2006, Pages S288-S289.

4.1.7. **V.C. Moulianitis**, N.A. Aspragathos (2009). Representation, Synthesis and Evaluation of Concepts in Engineering Design. 2nd I*PROMS Researcher Symposium, Ischia, Italy, 2009.

4.1.8. Dimitris Oikonomou, **Vassilis Moulianitis**, Dimitris Lekkas, Panayiotis Koutsabasis (2009). Decision Support System Design for Cooperation in Emergency Situations at the Hellenic Center of Emergency Response (EKAB), 2009 Workshop on Mobile Information Technology for Emergency Response, May 10th, 2009, Göteborg, Sweden.

4.1.9. **Vassilis Moulianitis**, Vasileios Syrimpeis, Nikolaos Aspragathos, Elias Panagiotopoulos, Maria Basia and Ioannis Fournianakis (2013). Expert system for gait event detection based on the gait cycle of both lower limbs. Accepted

for POSTER PRESENTATION in the 19TH CONGRESS OF THE EUROPEAN SOCIETY OF BIOMECHANICS.

4.1.10. Nikos Aspragathos, Eleftherios Dogkas, Anastasios Kanavos, Dimitrios Katsaros, Panagiotis Koutmos, Nefeli Lamprinou, Stefanos Michos, Vassilis C. Moulianitis, Georgios Paterakis, Emmanouil Z. Psarakis, Evangelos Sartinas, Konstantinos Souflas, Georgios Thanellas, Nikitas Xanthopoulos (2019). PRELIMINARY RESULTS FROM SMALL AND LARGE SCALE TESTS FOR AN EARLY DETECTION SYSTEM OF WILDFIRES IN STROFYLIA FOREST, SafeCorfu 2019 – 6th International Conference on Civil Protection & New Technologies 6-9 November, Ionian Academy – Corfu, Greece, pp. I-61-I-64.

NATIONAL

4.2.1. Συρίμπεης Β. Ν., **Μουλιανίτης Β. Χ.**, Ασπράγκαθος Ν. Α., Παναγιωτόπουλος Ηλ. Χ. (2006) Σχεδιασμός ασαφούς ελεγκτή για την αποκατάσταση της Ιπποποδίας. 1ο Συνέδριο Ελληνικής Εταιρείας Εμβιομηχανικής (ΕΛΕΜΒΙΟ) Τρίκαλα 15-16 Απριλίου 2006.

4.2.2. Χίου Λ. Λ., Συρίμπεης Β. Ν., **Μουλιανίτης Β. Χ.**, Ασπράγκαθος Ν. Α., Παναγιωτόπουλος Ηλ. Χ.. Σχεδιασμός Νευρο-Ασαφούς Ελεγκτή για την Αποκατάσταση της Ιπποποδίας. 2ο Συνέδριο Ελληνικής Εταιρείας Εμβιομηχανικής (ΕΛΕΜΒΙΟ), Αρχ. Ολυμπία, 4-6 Μαίου 2007.

4.2.3. Α. Δ. Λουλούδη, **Β.Χ. Μουλιανίτης** Ρομποτικό σύστημα παροχής κοινωνικής βοήθειας. TherapainiS. Ανηρτημένη Ανακοίνωση στο 1ο Πανελλήνιο Συνέδριο Ρομποτικής. 23 - 24 Φεβρουαρίου 2009, Αθήνα, 2009.

4.2.4. Μ.Π. Ρουγγέρη, **Β. Μουλιανίτης**. Gribot- Οικιακό ρομπότ παροχής υπηρεσιών για ανάρτηση, τοποθέτηση και μεταφορά αντικειμένων. Ανηρτημένη Ανακοίνωση στο 2ο Πανελλήνιο Συνέδριο Ρομποτικής, 9-10 Δεκεμβρίου 2010 Πάτρα, 2010.

4.2.5. Ιωάννου Δ., **Μουλιανίτης Β.**, Παπανίκος Π. Ρομποτικό σμήνος οικιακής εξυπηρέτησης: Μια διερευνητική προσέγγιση. Ανηρτημένη Ανακοίνωση στο 2ο Πανελλήνιο Συνέδριο Ρομποτικής, 9-10 Δεκεμβρίου 2010 Πάτρα, 2010

4.2.6. Ιωάννα Λεοντή και **Βασίλειος Μουλιανίτης** (2021), Εναλλακτικές Μουσειακές Εκθέσεις και Χώροι Δημιουργίας με Βάση τη Ρομποτική Προσθετική Κατασκευή, 4ο Πανελλήνιο Συνέδριο Ψηφιοποίησης Πολιτιστικής Κληρονομιάς – EuroMed 2021

EDITORIALS

5.1. **Moulianitis, V.C.,** Aspragathos, N.A., Introduction to the special issue on Theories and Methodologies for mechatronics design, Mechatronics 20 (8), pp. 825-826, 2010

5.2. Aspragathos, A.-N., Koustoumpardis, P.N., **Moulianitis, V.C.** (2019). Preface. Mechanisms and Machine Science 67, pp. v-vii

5.3. Aspragathos, A.-N., Koustoumpardis, P.N., **Moulianitis, V.C.** (2019) P. Preface for the Special Issue of the International Journal of Mechanics and Control (JoMaC) dedicated to 27th International Conference on Robotics in Alpe-Adria-Danube Region (RAAD 2018) International Journal of Mechanics and Control, 20 (1), p. 1.

5.4. Aspragathos, N., **Moulianitis, V.,** & Koustoumpardis, P. (2020). Special Issue on Human–Robot Interaction (HRI). Robotica, 38(10), 1715-1716.