Personal details and date of CV

30.05.2023

Name: Jairan Nafar Dastgerdi
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Degrees

12/2012-09/2016. Ph.D. Degree in Mechanics of Material, Aalto University, Finland
Graduate Date: 28.09.2016, GPA: 4.5/5 (with distinction)
Title: "*Mechanical modelling of particulate reinforced metal matrix composites*"
09/2010-03/2014. Ph.D. Degree in Applied Mechanics, Isfahan University of Technology, Iran
Graduate Date: 12.03.2014, GPA: 17.85/20
Title: *"The effects of nanotube waviness, agglomeration, and debonding on mechanical properties of polymer nanocomposites"*

Linguistic skills

Mother tongue: Persian
Other languages: English (Excellent), TOEFL (PBT) 573, 01.01.2011
Finnish (Good), YKI (Finnish language test) 3, 27.08.2016

Current employment

10/2019-up to now. Assistant Professor, Amirkabir University of Technology (AUT, Tehran Polytechnic), Iran.

Previous work experience

04/2023-up to now. Head of Structure, Flight Mechanics and Control group in Aerospace Engineering Department at AUT.
08-10/2021. Visiting Professor, Aalto University, Espoo, Finland.
08-11/2020. Visiting Professor, Aalto University, Espoo, Finland.
10/2016-09/2019. Post-doctoral researcher in Mechanical Engineering Department at Aalto University, Finland.
01/2013-09/2016. Doctoral candidate in the Department of Mechanical Engineering at Aalto University, Finland.
03-09/2015. Visiting researcher in the Department of Mechanical Engineering at National University of Singapore,Singapore.
06-12/2012. Postgraduate researcher in the Department of Mechanical Engineering at Aalto University, Finland.

Research funding and grants

06/2022-06/2023. Initiation of International Collaboration Programme funded by DFG German Research Foundation, Approx. 21000 Euros; Collaborative partners: Jairan Nafar Dastgerdi, and Jonas Hensel.

02/2020-02/2021. Financial grant for preparing a set of technical and educational textbooks in different engineering fields funded by Iran's Ministry of Cooperatives, Labor, and Social Welfare; as a part of a working group at AUT.

Research output

1. Total publications: 27 (16 Journal papers and 13 conference papers)
2. Scientific impact: h-index 10, total citation 338 (Google Scholar)

Research supervision and leadership experience

09/2020 up to now. Co-supervisor of two PhD students at AUT (Tehran Polytechnic), Tehran, Iran.
02/2022 up to now. Advisor of a PhD student at AUT (Tehran Polytechnic), Tehran, Iran.
04/2022 up to now. Advisor of a master thesis at AUT (Tehran Polytechnic), Tehran, Iran.
04/2022 up to now. Supervisor of an undergraduate student at AUT (Tehran Polytechnic), Tehran, Iran.
09/2020 up to now. Supervisor of four master students at AUT (Tehran Polytechnic), Tehran, Iran.
04/2021-09/2021. Supervisor of two undergraduate students at AUT (Tehran Polytechnic), Tehran, Iran.
04/2018- 07/2020. Advisor of a master thesis at AUT (Tehran Polytechnic), Tehran, Iran.
04/2019- 12/2019. Advisor of a master thesis at Aalto University, Finland.

Research interests

Fatigue of structures, Damage mechanics, Metal additive manufacturing, Composites, Microstructural characterization

Teaching merits

01/2021-01/2022. Revising and preparing a new postgraduate curriculum in Aerospace Engineering, Funded by the Higher Education Planning Council of the Iran Ministry of Science, Research and Technology, as part of a working group at AUT, Tehran, Iran.
10/2019-04/2022. Lecturer of the courses *Damage Mechanics in Composites*, *Specialized course in Fatigue and Experiments*, *Finite Element Method Analysis*, *Structural Design*, *Structural Analysis, and Statics* at AUT (Tehran Polytechnic), Tehran, Iran.
10-12/2017&2018. Co-lecturer of the course *Fatigue of Structures*, Aalto University, Finland.
2011-2012. Lecturer of the courses *Metal Forming, Component Design I* in the Aazad University, Isfahan, Iran.
2010-2011. Lecturer of developing scientific seminar on *Applications of Nanotechnology in Science and Engineering* in different universities of Iran founded by Iranian Nanotechnology Initiative Council, Tehran, Iran. (More than 10 seminars)
01-05/2009. Teaching Assistant of *Linear Control* and *Vibration* at the School of Engineering, University of Kashan, Iran.
2008-2009. Instructor the courses of *Continuum Mechanics*, *Advanced Mathematic*, and *Advanced Numerical Computations* for Shahed and Isargar (devotees) students in reinforcing courses sessions, University of Kashan, Iran.

Awards and honours

2021. Financial award for preparing an international research proposal from the International affairs of AUT, Iran.

2020. Financial awarded form the Elite Foundation of Iran for young assistant professors to establish their research group, Iran.
2017. Scholarship award from the Elite Foundation of Iran for postdoctoral research in collaboration with one of Iranian universities, Iran.
2016. Scholarship award from Aalto University for a doctoral degree completion less than eight full semesters, Finland.
2013. Scholarship award for doctoral studies (3years) by the Ministry of Education of Finland through the National Graduate Program of Engineering Mechanics, Finland.
2010. **First ranked student in M.Sc.** with the highest GPA in School of Engineering, Iran.
2008. Ranked in the top 10 percent of students as an **Exceptional talent** amongst graduated students at the University of Kashan. Admitted to the master's program of Mechanical Engineering by the Council of Exceptional Talent without any academic entrance exam, Iran.

Other academic merits

1. Pre-examiner of three doctoral proposals and opponent of three master thesis.
2. Collaboration with the National Organization of Educational Testing as a member of the testing committee preparing questions for the Master's entrance exam of the Iranian universities, 2021 and 2022, Iran.
3. Referee in some journals such as Journal of Constructional Steel Research, Computational Material Science, Composites Science and Technology and Engineering Fracture Mechanics.
4. Invited keynote lecturer for scientific speech at AUT, Iran.
   Part I: Microstructural effects on mechanical properties of particulate reinforced composites, January 2018.
   Part II: 3D X-ray tomography as a non-destructive method to characterize microstructure of material, May 2018.

Other merits

2020 up to now. Member of Iranian Welding and Joining Institute, Iran.
2019 up to now. Member of the Iranian Aerospace Society, Iran.
2019 up to now. Member of Structural Integrity and Life Assessment Center, AUT, Iran.
2017 up to now. Member of the Iranian National Elites Foundation, Iran.
2012. Third place in the Athletic Championships (shot put) Iranian students, Iran.

List of publications

A Peer-reviewed scientific articles

1. J. Nafar Dastgerdi, O. Jaberi, H. Remes, P. Lehto, H. Hosseini Toudeshky, J. Kuva, ***"Fatigue damage process of additively manufactured 316L steel using X-ray computed tomography imaging",*** *Published in Additive Manufacturing 70 (2023) 103559.* https://doi.org/10.1016/j.addma.2023.103559
2. J. Nafar Dastgerdi, O. Jaberi, H. Remes, ***"Influence of internal and surface defects on the fatigue performance of additively manufactured stainless steel 316L",*** *published in International Journal of Fatigue 163 (2022) 107025.* https://doi.org/10.1016/j.ijfatigue.2022.107025
3. J. Nafar Dastgerdi, M. Lotf Yasouri, H. Hosseini Toudeshky, ***"Microstructure-sensitive investigation on the mechanical behavior of CNT-reinforced composites considering debonding damage based on cohesive finite element method",*** *published in Material Todays Communications 31 (2022) 103458.* https://doi.org/10.1016/j.mtcomm.2022.103458
4. J. Nafar Dastgerdi, Janne T. Koivisto, Olli Orell, Pantea Rava, Jarno Jokinen, Mikko Kanerva, Minna Kellomaki, ***"Comprehensive characterisation of the compressive behaviour of hydrogels using a new modelling procedure and redefining compression testing",*** *published in Material Todays Communications 28 (2021) 102518.* https://doi.org/10.1016/j.mtcomm.2021.102518
5. J. Nafar Dastgerdi, F. Sheibanian, H. Remes, H. Hosseini Toudeshky, ***"Influences of Residual Stress, Surface Roughness and Peak-Load on Micro-Cracking: Sensitivity Analysis",*** *published in Metals 11 (2021) 320.* https://doi.org/10.3390/met11020320
6. J. Nafar Dastgerdi, F. Sheibanian, H. Remes, P. Lehto, H. Hosseini Toudeshky, ***"Numerical modeling approach for considering effects of surface integrity on micro-crack formation",*** *published in Journal of Constructional Steel Research 175 (2020) 106387.* https://doi.org/10.1016/j.jcsr.2020.106387
7. J. Nafar Dastgerdi, B. Anbarlooie, A. Miettinen, H. Remes, H. Hosseini-Toudeshky, ***"Effect of particle clustering on the plastic deformation and damage initiation of particle reinforced composite utilizing X-ray data and finite element modeling",*** *published in Composite Part B, 153c (2018) 57-69.* http://doi.org/10.1016/j.compositesb.2018.07.027
8. J. Nafar Dastgerdi, A. Miettinen, J. Parkkonen, H. Remes, ***"Multiscale microstructural characterization of particulate-reinforced composite with non-destructive X-ray micro- and nanotomography",*** *published in Composite Structures, 194 (2018) 292-301.* https://doi.org/10.1016/j.compstruct.2018.04.022
9. J. Nafar Dastgerdi, G. Marquis, S. Sankaranarayanan, M. Gupta, ***"Fatigue crack growth behavior of amorphous particulate reinforced composites",*** *published in Composite Structures, 153 (2016) 782-790.* http://dx.doi.org/10.1016/j.compstruct.2016.06.071
10. J. Nafar Dastgerdi, G. Marquis, B. Anbarlooie, S. Sankaranarayanan, M.Gupta, ***"Microstructure-based modeling of the effects of particle clustering on the plastic deformation and damage initiation of amorphous particles reinforced composites",*** *published in Composite Structures 142 (2016) 130-139.* http://dx.doi.org/10.1016/j.compstruct.2016.01.075
11. J. Nafar Dastgerdi, B. Anbarloei, S. Marzban, G. Marquis, ***"Mechanical and real microstructure behavior analysis of particulate-reinforced nanocomposite considering debonding damage based on cohesive finite element method"***, *published in Composite Structures 122 (2015) 518-525.* http://dx.doi.org/10.1016/j.compstruct.2014.12.009
12. J. Nafar Dastgerdi, G. Marquis, M. Salimi, ***"Micromechanical modeling of nanocomposites considering debonding of reinforcements",*** *published in Composites Science and Technology 93 (2014) 38–45.* http://dx.doi.org/10.1016/j.compscitech.2013.12.020
13. J. Nafar Dastgerdi, G. Marquis, M. Salimi, ***"Micromechanical modeling of nanocomposites considering debonding and waviness of reinforcements",*** *published in Composite Structures 110 (2014) 1–6.* http://dx.doi.org/10.1016/j.compstruct.2013.11.017
14. J. Nafar Dastgerdi, G. Marquis, M. Salimi, ***"The effect of nanotubes waviness on mechanical properties of CNT/SMP composites",*** *published in Composites Science and Technology 86 (2013) 164–169.* http://dx.doi.org/10.1016/j.compscitech.2013.07.012
15. K. Torabi, J. Nafar Dastgerdi, ***"An analytical method for free vibration analysis of Timoshenko beam theory applied to cracked nanobeams using a nonlocal elasticity model",*** *published in Thin Solid Films 520 (2012) 6595–6602.* http://dx.doi.org/10.1016/j.tsf.2012.06.063
16. K. Torabi, J. Nafar Dastgerdi, ***"Solution of free vibration equation of cracked beam by using differential transformed method (DTM)",*** *published in Applied Mechanics and Materials 110-116 (2012) 4532-4536.* https://www.scientific.net/AMM.110-116.4532

B Non-refereed scientific articles

1. J. Nafar Dastgerdi, R. Daroei, ***"ductile fracture mechanism considering anisotropic mechanical behavior of stainless steel 316L fabricated by direct laser sintering additive manufacturing method****". Accepted in 21st international conference of Iranian Aerospace society, February 26-28, 2023, Tehran, Iran.*
2. J. Nafar Dastgerdi, O. Jaberi, H. Remes, ***"Study of defect characteristics and their effect on the fatigue performance of metal additive manufactured components using X-ray computed tomography".*** *Accepted in 74th IIW on-line Assembly and International Conference, July 7-21, 2021.*
3. J. Nafar Dastgerdi, ***"Clustering effect on strengthening mechanisms of particulate reinforced composites using X-ray micro-tomography data".*** *Accepted in 19th international conference of Iranian Aerospace society, February 4-6, 2021, Tehran, Iran.*
4. F. Behnam, J. Nafar Dastgerdi, H. Remes, F. Mutignanti, F. Berto, ***"Influence of hot deep galavanizing on fatigue behavior of welded steel joints".*** *Accepted in 18th international conference of Iranian Aerospace society, February 4-6, 2020, Tehran, Iran.*
5. J. Koivisto, J. Nafar Dastgerdi, O. Orell, M. Kanerva, M. Kellonmaki, ***"Gellan Gum Hydrogel Compression Testing Combined with Digital Image Correlation".*** *Accepted in Scandinavian Society for Biomaterial, June 12-14, 2019, Espoo, Finland.*
6. J. Nafar Dastgerdi, J. Virkajarvi, H. Remes, H. Hosseini-Toudeshky, ***"Damage investigation of particulate reinforced composite from X-ray tomography in-situ fatigue test".*** *Accepted in 7th international conference on fatigue of composites, July 4-6, 2018, Vicenza, Italy.*
7. J. Nafar Dastgerdi, P. Lehto, H. Remes, ***"Effect of particle clustering on fatigue behavior of Mg-amorphous alloy composite".*** *Accepted in 21th international conference on composite materials, Aguste 20-25, 2017, Xian, China.*
8. J. Nafar Dastgerdi, G. Marquis, ***"Mechanical behavior analysis of particulate-reinforced nanocomposite: The roles of interphase region and particle spacing on debonding phenomena".*** *Accepted in 2nd international conference on mechanics of composites, July 11-14, 2016, Porto, Portugal.*
9. J. Nafar Dastgerdi, G. Marquis, ***"Thermomechanical behavior of CNF/ SMPU nanocomposites considering reinforcement damage".*** *Accepted in the 16th international conference on the science and application of Nanotubes (NT 15), June 29- July 3, 2015, Nagoya, Japan.*
10. J. Nafar Dastgerdi, G. Marquis, S. Marzban, ***"Thermal elastic buckling of plates made of carbon nanotube-reinforced composite materials".*** *Accepted in the 19th international conference on composites materials (ICCM 2013), July 28-2 August, 2013, Montreal, Canada.*
11. J. Nafar Dastgerdi, K. Torabi, S. Marzban, ***"Solution of free vibration equation of cracked beam by using differential transformed method (DTM)".*** *Accepted in the International conference on mechanical and aerospace engineering (ICMAE 2011), July 29-31, 2011, Bangkok, Thailand.* ***This article has been selected as an excellent paper in this conference.***
12. J. Nafar Dastgerdi, K. Torabi, ***"Free vibration of cracked nanobeams using Timoshenko beam theory".*** *Accepted in 2th annual conference on applications of nanotechnology in science, engineering and medicine (NTC2011), Islamic Azad university Mashhad branch, May 16-17, 2011, Mashhad, Iran*
13. K. Torabi., M. Vali, and J. Nafar Dastgerdi, ***"Robust controller design of MEMS gyroscope using quantitative feedback theory (QFT)".*** *Accepted in the 18th annual international conference on mechanical engineering (ISME 2010), school of mechanical engineering, Sharif University of technology, May 11-13, 2010, Tehran, Iran.*

D Publications intended for professional communities

Three textbooks in the Persian language funded by the Ministry of Cooperatives, Labor and Social Welfare.

1. J. Nafar Dastgerdi, M. khajezade, ***Technical instructions for periodic safety testing of pressure vessels***, (2022)*.
2. J. Nafar Dastgerdi, M. khajezade, ***Instructions for setting up pressure vessels (for inspectors)***, (2022).
3. J. Nafar Dastgerdi, M. khajezade, ***Instructions for setting up pressure vessels (for operators)***, (2022).

* This book includes technical non-destructive testing methods for defects detection.

G Thesis

Doctoral thesis:
"Mechanical modeling of particulate reinforced metal matrix composites"
http://urn.fi/URN:ISBN:978-952-60-6989-0