

1. Personal Information:	Name:	Moslem MOLAIE EMAMZADEH		
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	Academic Accounts:	ORCID page	Google Scholar page	Linkedin page
2. Education:	Ph.D. in Mechanical Engineering		01/ Nov./2021 - 31/Oct./2024	
	University of Modena and Reggio Emilia, Modena, Italy.			
	<ul style="list-style-type: none"> ➤ Honor and awards: received full scholarship from “University of Modena and Reggio Emilia”. ➤ Title of Thesis: "<i>Nonlinear Dynamics of Spiral Bevel Gears</i>". ➤ Research Supervisors: Prof. Francesco PELLICANO 			
	M.Sc. in Mechanical Engineering- Applied Mechanics		19/ Jan./2016	
Shahid Bahonar University of Kerman, Kerman, Iran.				
Title of Thesis: " <i>Nonlinear Dynamics of Straight Bevel Gears</i> ".				
B.Sc. in Mechanical Engineering- Solid Mechanics		22/Sept./2013		
Shahid Bahonar University of Kerman, Kerman, Iran.				
Title of Thesis: " <i>Simulation of cylindrical tank welding with ANSYS</i> "				
3. Honor and awards	<ul style="list-style-type: none"> ➤ “CM 2024 Conference Attendance and Travel Award” from the British Institute of Non-Destructive Testing (BINDT). ➤ “Sir James Lighthill Student Best Paper Award” from International Institute of Acoustics and Vibration (IIAV) 			
4. Research Experience	1. University of Modena and Reggio Emilia, Modena, Italy		From: 01/Dec./2020 To: 01/ Nov./2021	
	Title of project:			
	Cost-effective multi-sensor diagnostic-prognostic integrated system in mechanical drives for Industry 4.0			
	Aims of project: Development of a prognostic procedure to evaluate the residual life of gearboxes, starting from the analysis of the torque/speed history, using the same approach and software (KISSsoft), to provide an updated estimate of the residual life. Estimation of confidence values through experiments.			
2. Shahid Bahonar University of Kerman, Kerman, Iran		From: 28/Oct./2015 To: 17/April/2018		
Title of project No. 1:				
Simulation, optimization and Design Vertical Master Mold in Casting Process				
Aims of project:				
Updating the method of mold production in Sarcheshmeh copper complex , which is largest open cast copper mine in Iran, and is considered as the second largest copper deposit in the world.				
Period: 31/08/2016 – 17/04/2018				
Title of project No. 2:				
Simulation and optimization of the direct extrusion process by means of FEM				

	<p>Aims of project: Optimization of the extrusion process for Shahid Bahonar Copper Industries Company. Period: 28/10/2015 – 15/04/2018</p> <p>3. Kerman Graduate University of Technology, Kerman, Iran From: 22/May/2014 To: 21/May/2015</p> <p>Title of project: Reparation and reinforcement of the ball mill gears by means of FEM</p> <p>Aims of project: This project is done for Sarcheshmeh copper complex. The method for Reparation and reinforcement of the ball mill gears of the concentrate factory is developed by means of SolidWorks Simulation software.</p>
<p>5. Teaching Experience</p>	<p>1. University of Modena and Reggio Emilia, Modena, Italy</p> <p>Role: <u>Teaching Assistance</u> Subject #1: Vehicle Mechanics – Second semester of 2021-2022, 2022-2023, 2023-2024 Subject #2: Prognostics and Diagnostics – Second semester of 2023-2024</p> <hr/> <p>2. Shahid Bahonar University of Kerman, Kerman, Iran</p> <p>Role: <u>Lab. Manager</u> Subject: Laboratory of Dynamics and Vibration – Second semester of 2015-2016</p> <p>Role: <u>Teaching Assistance</u> Subject #1: Static – First and second semesters of year 2015-2016 Subject #2: Dynamics of Machinery – First semester of year 2015-2016 Subject #3: Mechanical Engineering Design II – Second semester of year 2015-2016</p>
<p>6. Publications</p>	<p>Journal papers:</p> <ol style="list-style-type: none"> 1. Zippo A., Iarriccio G., Molaie M., Pellicano F., “<i>Novel Nonlinear Suspension based on the Concept of Origami Metastructures: Theoretical and Experimental Investigations</i>”, <i>Vibration</i>, 2024. DOI: https://doi.org/10.3390/vibration7040058 2. Molaie M., Samani F. S., Zippo A., Iarriccio G., Pellicano F., “<i>Spiral Bevel Gears: Bifurcation and Chaos Analyses of Pure Torsional System</i>”, <i>Journal of Chaos, Solitons & Fractals</i>, 177, 114179, 2023. DOI: https://doi.org/10.1016/j.chaos.2023.114179 3. Molaie M., Samani F. S., Zippo A., Pellicano F., “<i>Spiral bevel gears: nonlinear dynamic model based on accurate static stiffness evaluation</i>”, <i>Journal of Sound and Vibration</i>, 544, 117395, 2023. DOI: https://doi.org/10.1016/j.jsv.2022.117395 4. Moslem M., Zippo A., Iarriccio G., Bergamini L., Pellicano F., “<i>Loaded and unloaded tooth contact analysis of spiral bevel gears in consideration of misalignments</i>”, <i>Insight-Non-Destructive Testing and Condition Monitoring</i>, 64(8), 442-446, 2022. DOI: https://doi.org/10.1784/insi.2022.64.8.442 5. Molaie M., Deylaghian S., Iarriccio G., Samani F. S., Zippo A., Pellicano F., “<i>Planet Load-Sharing and Phasing</i>”, <i>Machines</i>, 10(8), 634, 2022. DOI: https://doi.org/10.3390/machines10080634 6. Samani F. S., Salajegheh M., Molaie M., “<i>Nonlinear vibration of the spiral bevel gear under periodic torque considering multiple elastic deformation evaluations due to</i>

different bearing supports", SN Applied Sciences, 3(9), 772, 2021. DOI: <https://doi.org/10.1007/s42452-021-04755-6>

7. **Molaie M.**, Samani F. S., Pellicano F., "*Spiral Bevel Gears Nonlinear Vibration Having Radial and Axial Misalignments Effects*", Vibration, 4(3), 666-678, 2021. DOI: <https://doi.org/10.3390/vibration4030037>
8. S. Samani F., **Molaie M.**, Pellicano F., "*Nonlinear vibration of the spiral bevel gear with a novel tooth surface modification method*", Meccanica, 54(7), 2019. DOI: <https://doi.org/10.1007/s11012-019-00973-w>
9. **Molaie M.**, Samani F. S., Motahar H., "*Nonlinear vibration of crowned gear pairs considering the effect of Hertzian contact stiffness*", SN Applied Sciences, 1, 1-9. 2019. DOI: <https://doi.org/10.1007/s42452-019-0439-y>
10. **Molaie M.**, Darijani H., Bahreman M., Hosseini S. M., "*Autofrettage of nonlinear strain-hardening cylinders using the proposed analytical solution for stresses*", International Journal of Mechanical Sciences, 141, 450-460, 2018. DOI: <https://doi.org/10.1016/j.ijmecsci.2018.04.019>
11. Motahar H., Samani F. S., **Molaie M.**, "*Nonlinear vibration of the bevel gear with teeth profile modification*", Nonlinear Dynamics, 83, 1875-1884, 2016. DOI: <https://doi.org/10.1007/s11071-015-2452-z>
12. Afshar N.P., Samani F. S., **Molaie M.**, "*The application of the linear and nonlinear vibration absorbers for the nonlinear beam under moving load*", Journal of Computational and Applied Research in Mechanical Engineering, 2015. DOI: <https://doi.org/10.22061/jcarme.2015.344>

Upcoming papers (submitted in a journal or under preparation):

13. **Molaie M.**, Zippo A., Pellicano F., "*Chaotic Dynamics of Spiral Bevel Gears*", submitted in: International Journal of Non-Linear Mechanics, 2024.
14. **Molaie M.**, Zippo A., Pellicano F., "*Nonlinear dynamics of Bevel Gears: A Comprehensive Review*", under preparation, 2024.

Conference papers:

1. Samani F.S., **Molaie M.**, Rakhshani S., Asadi, M., Ebrahimnejad, R., Zippo, A., Iarriccio G., Pellicano F., "*Lateral bearing stiffness effect on the spiral bevel gear nonlinear vibration response*", 20th International Conference on Condition Monitoring and Asset Management (CM2024), Oxford, 2024.
2. Ebrahimnejad, R., **Molaie M.**, Iarriccio G., Zippo, A., Pellicano F., "*Dynamical Response of Electrical Transmission System*", 20th International Conference on Condition Monitoring and Asset Management (CM2024), Oxford, 2024.
3. Estahbanati, M., Samani F.S., **Molaie M.**, Zippo, A., Pellicano F., "*The effect of Spiral bevel gears misalignment on the induced contact and bending stresses*", ASME 2024 International Mechanical Engineering Congress and Exposition, Portland, 2024.
4. **Molaie M.**, Ebrahimnejad, R., Iarriccio G., Zippo, A., Pellicano F., Samani F.S., "*Spiral Bevel Gear: The Nonlinear Analyses of The Mesh Stiffness*", In The 30th international congress on sound and vibration (ICSV30), Amsterdam, 2024.

5. Ebrahimnejad, R., Zippo, A., Iarriccio G., **Molaie M.**, Pellicano F., "*Theoretical and Experimental Investigation On Novel Nonlinear Suspension Based On Origami Metastructure Concept*", In The 30th international congress on sound and vibration (ICSV30), Amsterdam, 2024.
6. Iarriccio G., **Molaie M.**, Ebrahimnejad, R., Zippo, A., Pellicano F., "*Experimental and numerical analysis of a piecewise nonlinear-linear stiffness isolator under seismic loads*", In The 30th international congress on sound and vibration (ICSV30), Amsterdam, 2024.
7. **Molaie M.**, Ebrahimnejad, R., Iarriccio G., Zippo, A., Pellicano F., Samani F.S., "*Spiral bevel gear: existence of trapping phenomenon in helicopter transmission system*", In The 11th European Nonlinear Dynamics Conference (ENOC24), Netherlands, 2024.
8. Zippo, A., Ebrahimnejad, R., **Molaie M.**, Iarriccio G., Pellicano F., "*Exploration of Origami Metastructures: Theoretical and Experimental Analysis of an Innovative Nonlinear Suspension System*", In The 11th European Nonlinear Dynamics Conference (ENOC 2024), Netherlands, 2024
9. Iarriccio G., **Molaie M.**, Ebrahimnejad, R., Zippo, A., Pellicano F., "*Nonlinear dynamics of shallow spherical caps under harmonic pressure fields*", In The 11th European Nonlinear Dynamics Conference (ENOC 2024), Netherlands, 2024.
10. Samani F.S., **Molaie M.**, Rakhshani S., Asadi, M., Zippo, A., Iarriccio G., Pellicano F., "*Nonlinear Dynamics of Spiral Bevel Gear: axial bearing stiffness effect*", In The 5th International Conference of IFToMM ITALY (IFIT), Turin, 2024.
11. **Molaie M.**, Iarriccio G., Zippo A., Pellicano F., Samani F. S., "*Complex Dynamics of Spiral Bevel Gears*", In The 29th international congress on sound and vibration (ICSV29), Prague, 2023.
12. **Molaie M.**, Samani F. S., Iarriccio G., Zippo A., Pellicano F., "*Spiral Bevel Gears nonlinear dynamics: chaotic response existence in multi degree of freedom systems*", In Third International Nonlinear Dynamics Conference (NODYCON23), Rome, 2023.
13. Iarriccio G., Zippo A., **Molaie M.**, Pellicano F., "*Quasi-zero stiffness vibration isolator under vertical seismic loads*", In Third International Nonlinear Dynamics Conference (NODYCON23), Rome, 2023.
14. **Molaie, M.**, Ebrahimnejad, R., Zippo, A., Iarriccio, G., Pellicano, F., Samani, F. S., "Non-linear dynamic behaviour of spiral bevel gear by considering the torsional shaft stiffness", 19th International Conference on Condition Monitoring and Asset Management, 2023(1), 1-11, 2023.
15. Iarriccio G., Zippo A., **Molaie M.**, Pellicano F., "Non-linear isolators for civil applications", 19th International Conference on Condition Monitoring and Asset Management, 2023(1), 1-3, 2023.
16. Iarriccio G., **Molaie M.**, Zippo A., Pellicano F., "*Experiments on a Quasi-zero Stiffness Suspension for Passive Vibration Control*", The International Conference of IFToMM ITALY, Springer International Publishing, 306-312, 2022.
17. Zippo A., Iarriccio G., Pellicano F., **Molaie M.**, "*Fluid structure interaction of non-newtonian fluids and circular cylindrical shell*", In The 28th international congress on sound and vibration (ICSV28), Singapore, 2022.

18. **Molaie M.**, Iarriccio G., Zippo A., Pellicano F., Samani F. S., “*Nonlinear dynamics of spiral bevel gear in the presence of axial and radial misalignments*”, In The 28th international congress on sound and vibration (ICSV28), Singapore, 2022.
19. Zippo A., Bergamini L., D'Elia G., Pellicano F., Dalpiaz G., Iarriccio G., **Molaie M.**, “*Digital Twins: Neural-Networks for the implementation of digital twins of gearboxes*”, 18th International Conference on Condition Monitoring and Asset Management, CM 2022, 192-196, 2022.
20. Iarriccio G., Zippo A., **Molaie M.**, Bergamini L., Pellicano F., “*Effects of laser surface texturing on the dynamic performance of spur gears*”, 18th International Conference on Condition Monitoring and Asset Management, CM 2022, 176-181, 2022.
21. Bergamini L., Zippo A., Pellicano F., Iarriccio G., **Molaie M.**, “*Gear prognostics: A predictive algorithm for lifetime estimation of operating gearboxes*”, 17th International Conference on Condition Monitoring and Asset Management, CM 2021, 2021.
22. **Molaie M.**, Iarriccio G., Pellicano F., Samani F. S., Zippo A., “*Loaded tooth contact analysis and dynamic investigation of Spiral Bevel Gears*”, Newsletter EnginSoft, 2021.
23. **Molaie M.**, Samani F.S., “*Nonlinear dynamic of a spiral bevel gear pair with time-varying mesh stiffness*”, 5th International Conference on Sciences, Engineering and Technology Innovations (ICSETI), 2017.
24. **Molaie M.**, Samani F.S., Rezaiezhadeh M., “*Ball Mill Gear Simulation and Reinforcement, Sarcheshmeh Copper Complex*”, 5th International Conference on Sciences, Engineering and Technology Innovations (ICSETI), 2017.

7. Reviewing Experience	<ul style="list-style-type: none"> • Nonlinear Dynamics • Scientific Reports • Journal of the Brazilian Society of Mechanical Sciences and Engineering • Mechanism and machine theory • ASME • MDPI 																																
8. Digital skills	<table border="1"> <thead> <tr> <th>Software</th> <th>Field</th> <th>Skill</th> </tr> </thead> <tbody> <tr> <td>FORTRAN</td> <td>Programming</td> <td>Advanced</td> </tr> <tr> <td>Matlab</td> <td>Programming</td> <td>Advanced</td> </tr> <tr> <td>Calyx</td> <td>Modeling and gear-pair simulation</td> <td>Advanced</td> </tr> <tr> <td>KISSsoft</td> <td>Modeling and gear-pair simulation</td> <td>Advanced</td> </tr> <tr> <td>Romax</td> <td>Modeling and gear-pair simulation</td> <td>Advanced</td> </tr> <tr> <td>MASTA</td> <td>Modeling and gear-pair simulation</td> <td>Advanced</td> </tr> <tr> <td>Maple</td> <td>Programming</td> <td>Intermediate</td> </tr> <tr> <td>SolidWorks</td> <td>Modeling, Analysis</td> <td>Advanced</td> </tr> <tr> <td>ANSYS</td> <td>Analysis</td> <td>Intermediate</td> </tr> </tbody> </table>	Software	Field	Skill	FORTRAN	Programming	Advanced	Matlab	Programming	Advanced	Calyx	Modeling and gear-pair simulation	Advanced	KISSsoft	Modeling and gear-pair simulation	Advanced	Romax	Modeling and gear-pair simulation	Advanced	MASTA	Modeling and gear-pair simulation	Advanced	Maple	Programming	Intermediate	SolidWorks	Modeling, Analysis	Advanced	ANSYS	Analysis	Intermediate		
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9. Language Skills	<ul style="list-style-type: none"> ➤ Mother tongue: Persian ➤ Second language: English (Fluent) 																																
10. Research Interests	<ul style="list-style-type: none"> ➤ Nonlinear dynamics ➤ Transmission systems ➤ Programming ➤ Machine learning ➤ Chaos ➤ Metamaterials 																																