

# Curriculum Vitae



## Personal Information

<b>Turkish Name, Surname</b>	Muhammed ARAS
<b>Iranian Name, Surname</b>	Mohammad Rafighi
<b>Date and Place of Birth</b>	1988 – Tabriz/Iran
<b>Nationality</b>	Turkish-Iranian
<b>Marital status</b>	Married
<b>Address</b>	Sivas University of Science and Technology, Kardeşler St., No:7/1, 58100, İmaret, Merkez, Sivas, Türkiye
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## Educational Background

Degree	Department	GPA	Name of Institution	Date
Ph.D.	Manufacturing Engineering	4.00/4.00	Department of Manufacturing Engineering, Gazi University, Ankara, Turkey	2014-2018
M.Sc.	Mechanical Education	3.64/4.00	Department of Mechanical Education, Gazi University, Ankara, Turkey	2011-2013
B.Sc.	Mechanical Engineering	2.92/4.00	Department of Mechanical Engineering, Islamic Azad University of Tabriz, Iran	2006-2010

## Abroad Research Experience

No	Name of University	Role	Date
1	Brandenburg University of Technology, Cottbus, Germany	of Rolls-Royce jet engine design project ( <i>Erasmus R&amp;D researcher</i> )	06/2017-08/2017
2	Perugia University, Perugia, Italy	( <i>Erasmus R&amp;D researcher</i> )	06/2014-09/2014

## Work experiences

No	Name of firm/University	Job Title	Date
1	Sivas University of Science and Technology Aeronautical Engineering	Associate Prof. Dr.	2022-...
2	University of Turkish Aeronautical Association Mechanical Engineering	Assistant Prof. Dr.	2018-2022
3	Gazi University, Ankara, Turkey Manufacturing Engineering	Teaching Assistant (Not Official)	2014-2018
4	Tractorsazi Factory, Tabriz, Iran	Stager	2008-2009

## Administrative Duties

No	Name of firm/University	Type	Date
1	University of Turkish Aeronautical Association (UTAA)	Erasmus Coordinator, Faculty of Engineering	2021-2022
2	UTAA	Internship Coordinator, Mechanical Engineering Department	2021-2022
3	UTAA	Scientific Publications Evaluation Committee Member	2021-2022
4	UTAA	Foreign Students Admission Committee Member	2021-2022

## Certifications

GRE	Quantitative: <b>157</b>
Language	English YÖKDİL: <b>87.50</b>

## Research Interests

Machinability, Hard Turning, Cutting Tools, Optimization, Materials Testing, Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), Finite Element Analysis (FEA)

## Publications

### SCI/SCI-Expanded (Published)

- 1 Özdemir, M., Şahinoğlu, A., **Rafighi, M.**, and Yılmaz, V. (2022) "Analysis and optimization of the cutting parameters based on machinability factors in turning AISI 4140 steel" **Canadian Metallurgical Quarterly**, 61(4), pp. 407-417. DOI: 10.1080/00084433.2022.2058154
- 2 Kumar, R., Pandey, A., Sahoo, A. K., and **Rafighi, M.** (2022) "Investigation of machinability performance in turning of Ti-6Al-4V ELI alloy using firefly algorithm and GRNN approaches" **Surface Review and Letters**, 29(6), No: 2250075. DOI: 10.1142/S0218625X22500755
- 3 **Rafighi, M.**, Özdemir, M., Das, A., and Das, S. (2022) "Machinability investigation of cryogenically treated hardened AISI 4140 alloy steel using CBN insert under sustainable finish dry hard turning" **Surface Review and Letters**, 29(4), No: 2250047. DOI: 10.1142/S0218625X22500470  
DOI: 10.1177/09544089221083467
- 4 **Rafighi, M.** (2022) "Effect of shallow cryogenic treatment on surface characteristics and machinability criteria in turning of AISI 4140 steel" **Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering**, 236(5), pp. 2118-2130.
- 5 Şahinoğlu, A., **Rafighi, M.** and Kumar, R. (2022) "An investigation on cutting sound effect on power consumption and surface roughness in CBN tool-assisted hard turning" **Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering**, 236(3), pp. 1096-1108.  
DOI: 10.1177/09544089211058021
- 6 **Rafighi, M.** (2022) "The cutting sound effect on the power consumption, surface roughness, and machining force in dry turning of Ti-6Al-4V titanium alloy" **Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science**, 236(6), pp. 3041-3057.  
DOI: 10.1177/09544062211072411
- 7 Das, A., Kamal, M., Das, S. R., Patel, S. K., Panda, A., **Rafighi, M.**, and Biswal, B. B. (2022) "Comparative assessment between AlTiN and AlTiSiN coated carbide tools towards machinability improvement of AISI D6 steel in dry hard turning" **Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science**, 236(6), pp. 3174-3197. DOI: 10.1177/09544062211037373

- 8 Şahinoğlu, A. and Rafighi, M. (2021) "Investigation of tool wear, surface roughness, sound intensity, and power consumption during hard turning of AISI 4140 steel using multilayer-coated carbide inserts" *Journal of Engineering Research*, 9 (4B), pp. 377-395. DOI: 10.36909/jer.8783
- 9 Şahinoğlu, A. and Rafighi, M. (2021) "Machinability of Hardened AISI S1 Cold Work Tool Steel using Cubic Boron Nitride" *Scientia Iranica*, 28(5), pp. 2655-2670. DOI: 0.24200/SCI.2021.55772.4398
- 10 Rafighi, M., Al Shehabi, S., Özdemir, M. and Kaya, M. T. (2021) "Sustainable Hard Turning of High Chromium AISI D2 Tool Steel using CBN and Ceramic Inserts" *Transactions of the Indian Institute of Metals*, 74(7), pp. 1639-1653. DOI: 10.1007/s12666-021-02245-2
- 11 Rafighi, M., Özenç, O., Kaya, M. T., Özdemir, M. and Akyıldız, H. K. (2021) "Machinability of the AISI M2 high-speed steel using CBN insert" *Journal of the Chinese Society of Mechanical Engineers*, 42(4), pp. 403-412.
- 12 Tanabi, H. and Rafighi, M. (2020) "Turning machinability of alloyed ductile iron compared to forged EN 1.7131 steel" *Materials Testing*, 62(12), pp. 1259-1264. DOI: 10.1515/mt-2020-621216
- 13 Şahinoğlu, A. and Rafighi, M. (2020) "Optimization of cutting parameters with respect to roughness for machining of hardened AISI 1040 steel" *Materials Testing*, 62(1), pp. 85-95. DOI: 10.3139/120.111458
- 14 Şahinoğlu, A. and Rafighi, M. (2020) "Investigation of vibration, sound intensity, machine current, and surface roughness values of AISI 4140 during machining on the lathe" *Arabian Journal for Science and Engineering*, 45(2), pp. 765–778. DOI: 10.1007/s13369-019-04124-x.
- 15 Salimiasl, A., Erdem, A. and Rafighi, M. (2017) "Applying a multi sensor system to predict and simulate the tool wear using of artificial neural networks" *Scientia Iranica*, 24(6), pp. 2864-2874. DOI: 10.24200/sci.2017.4247

#### SCI/SCI-Expanded (Accepted)

- 16 Rafighi, M., Özdemir, M., Şahinoğlu, A., Kumar, R., and DAS, S. R. (2023) "Investigation of cutting force, surface roughness, and sound intensity in dry hard turning of AISI 52100 bearing steel" *Surface Review and Letters*

#### SCI/SCI-Expanded (Under Review)

- 17 Özdemir, M., Rafighi, M., and Şahinoğlu, A. (2023) "Investigation of the machinability of AISI 52100 steel having 40-45 HRC hardness" *Journal of Wuhan University of Technology-Materials Science Edition*
- 18 Özdemir, M., and Rafighi, M., (2023) "Comparative evaluation of coated carbide and CBN inserts performance in dry hard turning of AISI 4140 steel using Taguchi-based grey relation analysis" *Journal of Materials Engineering and Performance*.
- 19 Kumar, R., İynen, O., Rafighi, M., and Özdemir, M., Pandey, A., (2023) "Machinability comparison of TiCN-Al<sub>2</sub>O<sub>3</sub>-TiN, TiAlN-TiN, and TiAlSiN coated carbide inserts in turning hardened AISI 4340 steel: An experimental and grey-crow search hybrid optimization approach" *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*.

#### E-SCI, TR-Dizin (Published)

- 20 Erdem, S., Özdemir, M., Rafighi, M., and Yavuz, M., (2022) "Effect of cutting parameters on surface roughness and cutting forces in hard turning of 1.2367 hot work tool steel" *Journal of Polytechnic*, (Published Online) DOI: 10.2339/politeknik.1059568
- 21 Rafighi, M. (2021) "Comparison of Ceramic and Coated Carbide Inserts Performance in Finish Turning of Hardened AISI 420 Stainless Steel" *Journal of Polytechnic*, 24(3), pp. 1295-1302. DOI: 10.2339/politeknik.892146

- 22 Salimiasl, A., and **Rafighi, M. (2017)** "Vibration and cutting force based tool wear monitoring and estimating via by fuzzy logic" *Journal of Polytechnic*, 20(1): 111-120.
- 23 Salimiasl, A., and **Rafighi, M. (2017)** "Investigation of Recent Developments in Tool Condition Monitoring during Machining Operations" *Düzce University Institute of Science and Technology*, 5(1): 314-337.

### International Proceedings

- 24 **Rafighi, M. (2021)** "Influence of turning parameters on the radial, tangential, and feed forces during turning of Ti-6Al-4V titanium alloy" *2<sup>nd</sup> Sciences and Innovation Congress*, Ankara, Turkey (23/05/2021)
- Rafighi, M., and Güllü, A. (2021)** "Design and fabrication of automatic orthognathic surgery articulator" *1<sup>st</sup> International Congress on Engineering Sciences and Multidisciplinary Approaches*, Istanbul, Turkey (23/02/2021)
- 25 **Rafighi, M. (2020)** "Surface roughness prediction during finish hard turning of AISI 420 martensitic stainless steel using ceramic insert" *9<sup>th</sup> International Scientific Research Congress- Science and Engineering (UBAK)*, Ankara, Turkey (12/12/2020)
- 26 **Rafighi, M. (2020)** "Effect of Cutting Parameters on Machinability of Hardened AISI 52100 Bearing Steel" *Academic Perspective Procedia*, 3(1): 474-481, (2020).
- 27 *DOI: 10.33793/acperpro.03.01.94*  
This paper is presented in the *8<sup>th</sup> International Symposium on Innovative Technologies in Engineering and Science*, Bursa, Turkey (23/10/2020).
- 28 **Rafighi, M., and Güllü, A. (2014)** "The design, analysis and manufacturing a supportive device to walking disabled people" *10<sup>th</sup> International Conference on Mechatronic Systems and Materials, (MSM 10/07/2014)*, 87-95, Opole, Poland.

### Book Chapters

- 29 **Rafighi, M., Güllü, A., and Orhan, M., (2021)** "Operating principle of automatic articulator" *Engineering and Technology Management, Güven Plus Group*, 348-368.
- 30 Özdemir, M., Türkcan, Ö., Yılmaz, V., and **Rafighi, M. (2021)** "Optimization of machining parameters in turning of AISI 4340 steel" *Advances in Machinery and Digitization, İksad Yayınevi*, 51-78.
- 31 Şahinoğlu, A. and **Rafighi, M. (2019)** "Investigation of the relationship between temperature, sound intensity and surface roughness related to tool wear during turning of hardened AISI 4340 material" *Energy and Environmental Studies for the Near Future, Akademisyen Kitabevi*, 65-79.

### Other Publications

- 32 **Rafighi, M., and Güllü, A. (2017)** "Design of a novel walking assistance device for people with walking disabilities" *International Journal of Engineering & Technology*, 6(4): 191-194.  
*DOI: 10.14419/ijet.v6i4.8656*

### Editorial Experience

International Journal of Mechanical Engineering and Applications

11/2020-11/2022

### Review Experience

International Advanced Researches and Engineering Journal, Mechanics & Industry, Metallurgical Research & Technology, Journal of the institution of engineers (India) series C, Cukurova University Journal of the Faculty of Engineering, Journal of Materials Engineering and Performance, Experimental Techniques, Surface Review and Letters, Journal of Polytechnic, Manufacturing Technologies and Applications, Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, Advances in Materials and Processing Technologies, Gazi University Journal of Science Part A Engineering and Innovation, International Journal on Interactive Design and Manufacturing, Scientific Report

## Courses Taught

Statics, Manufacturing Techniques, Mechanics Design, Heat Transfer, Fundamentals of Mechanical Engineering, CNC Machines, Materials Science and Manufacturing Techniques, Advanced CAD and CAM, Materials Science and Manufacturing Methods for Mechatronics Engineering, Computer-Aided Manufacturing, Computer-Aided Technical Drawing, Mechanical Engineering Orientation, Engineering Mechanics, Mechanics of Materials, Senior Design Project I, Senior Design Project II, Summer Practice I, Summer Practice II, Advanced Manufacturing Techniques

## Patent

**Rafighi, M.**, Güllü, A., and Orhan, M., (2022) "Otomatik Artikülatör", Turkish Patent and Trademark Office  
Patent No: 2018 07478

## Honors

- 1 Ranked 1st at the Technology Faculty of Gazi University (Ph.D. GPA)
- 2 Ranked 5th in the third Business Idea Competition in Gazi University.
- 3 Ranked 2nd in the Mechanical Education Department of Gazi University (M.Sc. GPA)

## Ph.D. Thesis title (Supervisor: Prof. Dr. Abdulkadir Güllü)

Design and prototype manufacturing of automatic orthognathic surgery articulator with five degrees of freedom

## M.Sc. Thesis title (Supervisor: Prof. Dr. Abdulkadir Güllü)

The design and manufacturing of a supportive device for walking of disabled people

## Personal skills and competencies

### Languages

English, Turkish, Azerbaijani, Persian

## Projects

- 1 **BAP Project:** Project No: **07/2012-14**, Position in Project: **Researcher**  
Name of project: "**The design and manufacturing a dual-axis supportive device to walking for adult disabled people**"  
Budgets: **12000 TL**
- 2 **BAP Project:** Project No: **07/2017-07**, Position in Project: **Researcher**  
Name of project: "**Design and manufacture of the five degrees of freedom automatic orthognathic surgery articulator**"  
Budgets: **25000 TL**

## Technical Skills

Solid Works, CATIA, MINITAB, SWANSOFT, Microsoft Office (**Very Good**)  
NX, ANSYS, MATLAB, C# (**Beginning**)

## References

- 1 **Prof. Dr. Abdulkadir Güllü**, Department of Manufacturing Engineering, Gazi University, Ankara, Turkey (+90 536 255 06 33). [agullu@gazi.edu.tr](mailto:agullu@gazi.edu.tr)
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- 5 **Prof. Dr.-Ing. Klaus Hoeschler**, Head of Mechanical Engineering, Brandenburg Technical University, Cottbus, Germany (+49 355 69 4332). [klaus.hoeschler@b-tu.de](mailto:klaus.hoeschler@b-tu.de)