

# Hakan Doğan

Assistant Professor | Hacettepe University

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**Research interests:** Machining dynamics, Vibration control, Machining process monitoring, Inerter applications

## SUMMARY

I am an assistant professor in the Department of Mechanical Engineering at *Hacettepe University*. I was awarded my Bachelor's degree from *Dokuz Eylul University, Turkey*. I completed my MSc and PhD degrees at *The University of Sheffield*. During my doctoral studies, I focused on chatter control in machining, which formed the basis of my PhD thesis and my main research interest. Following the completion of my PhD, I worked as a postdoctoral researcher at *University of Bath*.

## EDUCATION

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|---|-------------|
| PhD, Mechanical Engineering, <b>The University of Sheffield</b> | 2017 - 2021 |
| MSc, Mechanical Engineering, <b>The University of Sheffield</b> | 2016 - 2017 |
| BSc, Mechanical Engineering, <b>Dokuz Eylul University</b>      | 2009 - 2013 |

## WORK EXPERIENCE

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| Assistant Professor, <b>Hacettepe University</b><br>Department of Mechanical Engineering   | Aug 2023 - Present   |
| Research Associate, <b>University of Bath</b><br><i>Under an EPSRC Research project</i>  | Feb 2022 - May 2023  |
| Graduate Teaching Assistant, <b>The University of Sheffield</b><br><i>Assisted in tutorials, lab works and report markings</i>     | Sep 2018 - June 2021 |
| Machine Design and Application Engineer, <b>VESTEL (Industry)</b><br><i>KUKA industrial robots application in Vestel factories</i> | July 2015 - Oct 2015 |

## PUBLICATIONS

Journal articles:

- [1] **Dogan H**, Tamer A, Salman HE, Deastra P. (2024) Utilising computational fluid dynamics to investigate damping effects in fluid inerter-based vibration control devices. *Journal of Physics: Conference Series*, 2909 (1), 012029. <https://doi.org/10.1016/j.procir.2024.05.077>
- [2] Mypati O, **Dogan H**, Robles-Linares JA, Shokrani A, Liao Z. (2024) Chip morphology prediction in Inconel 718 through machine learning to control surface integrity. *Procedia CIRP*, vol.123, pp.440-445. <https://doi.org/10.1088/1742-6596/2909/1/012029>
- [3] Shokrani A, **Dogan H**, Burian D, Nwabueze TD, Kolar P, Liao Z, Sadek A, Teti R, Wang P, Pavel R, Schmitz T. (2024) Sensors for in-process and on-machine monitoring of machining operations. *CIRP Journal of Manufacturing Science and Technology*, vol.51, pp.263-292. <https://doi.org/10.1016/j.cirpj.2024.05.001>
- [4] **Dogan H**, Ozsoy M, Ozturk E, Wagg DJ, Sims ND. (2024) Analysis of virtual inerter-based passive absorber for active chatter control. *Journal of Sound and Vibration*, 578, 118359. <https://doi.org/10.1016/j.jsv.2024.118359>

- [5] Omole S, **Dogan H**, Lunt AJG, Kirk S, Shokrani A. (2024) Using machine learning for cutting tool conditions monitoring and prediction during machining of tungsten. *International Journal of Computer Integrated Manufacturing*, 37(6), pp.747-771. <https://doi.org/10.1080/0951192X.2023.2257648>
- [6] **Dogan H**, Sims ND, Wagg DJ. (2023) Implementation of inerter-based dynamic vibration absorber for chatter suppression. *Journal of Manufacturing Science and Engineering*, 148(8), 084502. <https://doi.org/10.1115/1.4062118>
- [7] **Dogan H**, Jones L, Hall S, Shokrani A. (2023) Towards sustainable and intelligent machining: Energy footprint and tool condition monitoring for media-assisted processes. *Journal of Machine Engineering*, 148(8), 084502. <https://doi.org/10.36897/jme/166463>
- [8] **Dogan H**, Shokrani A. (2023) Investigation of chatter detection with sensor-integrated tool holders based on strain measurement. *Procedia CIRP*, 117, 157-162. <https://doi.org/10.1016/j.procir.2023.03.028>
- [9] **Dogan H**, Sims ND, Wagg DJ. (2022) Design, testing and analysis of a pivoted-bar inerter device used as a vibration absorber. *Mechanical Systems and Signal Processing*, 171, 108893. <https://doi.org/10.1016/j.ymssp.2022.108893>
- [10] **Dogan H**, Sims ND, Wagg DJ. (2019) Investigation of the inerter-based dynamic vibration absorber for machining chatter suppression. *Journal of Physics: Conference Series*, 1264. <https://doi.org/10.1088/1742-6596/1264/1/012030>
- [11] Malgaca L, **Dogan H**, Akdag M, Yavuz S, Uyar M, Bidikli B. (2018) Effect of joint flexibility on vibration characteristics of a composite box manipulator. *Composite Structures*, 183, 271-277. <https://doi.org/10.1016/j.compstruct.2017.03.037>

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Conference proceedings papers:

- [1] **Dogan H**, Ozsoy M, Shokrani A. (2024) Feasibility study of an absorber-integrated cutting tool in milling for chatter suppression. *12<sup>th</sup> International Congress on Machining UTIS 2024*.
- [2] Ozsoy M, **Dogan H**, Ozturk E, Wagg DJ, Sims ND. (2022) Active chatter suppression through virtual inerter-based passive absorber control. *Proceedings of the Machining Innovations Conference for Aerospace Industry (MIC) 2022*. <http://dx.doi.org/10.2139/ssrn.4259207>
- [3] **Dogan H**, Sims ND, Wagg DJ. (2020) The effects of parasitic mass on the performance of inerter-based dynamic vibration absorbers. *XI International Conference on Structural Dynamics*, 23 Nov 2020 - 26 Nov 2020, Lyon, France. <http://dx.doi.org/10.47964/1120.9125.19507>
- [4] **Dogan H**, Sims ND, Wagg DJ. (2020) Design and implementation of TID for vibration suppression. *Proceedings of ISMA 2020 - International Conference on Noise and Vibration Engineering and USD 2020 - International Conference on Uncertainty in Structural Dynamics*, pp.3087-3096

## CONFERENCE PRESENTATIONS

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- 12<sup>th</sup> International Congress on Machining (UTIS 2024), 1-3 July 2024, Antalya, Turkey.
- XI International Conference on Structural Dynamics (EURODYN 2020), 23-26 Nov 2020, Athens, Greece (online due to COVID 19).
- International Conference on Noise and Vibration Engineering (ISMA 2020), 7-9 Sept 2020, Leuven, Belgium (online due to COVID 19).
- XIII International Conference on Recent Advances in Structural Dynamics (RASD 2019), 15-17 Apr, Lyon, France.

## OTHER RELEVANT MERITS

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**Projects:** Support of early career researchers (Principle Investigator) \$13 500 - *Hacettepe University, 2024-2025 (18 Months)*

**Awards:** PhD Scholarship (2015) - Turkish Ministry of National Education

**Teaching experience:** Analytical methods in engineering (Postgrad, 23/24), Dynamics (Undergrad, 23/24), Multi-disciplinary project work (Undergrad, 23/24)

**Reviews for Journals:** Journal of Sound and Vibration, Structural Control and Health Monitoring, Nonlinear Dynamics, The International Journal of Advanced Manufacturing Technology, Journal of Manufacturing and Material Processing, Advances in Mechanical Engineering, Materials (Special Issue: Monitoring of Cutting Process and Tool Condition of Metal and Metal Composite)