

SEYED EHSAN LAYEGH KHAVIDAKI

Mechanical engineer with academic and industrial background in simulation and optimization of machining operations.

CONTACT INFORMATION

Koc University, Rumeli Feneri Yolu, 34450, Sariyer, Istanbul, Turkey

Cell: +90 506 283 9904

Email:

Work: slayegh@ku.edu.tr

Personal: ehsan_layegh@yahoo.com

<http://marc.ku.edu.tr/>

<https://tr.linkedin.com/pub/ehsan-layegh/57/543/770>

https://www.researchgate.net/profile/Ehsan_Layegh

NATIONALITY

Iranian

Born: 26.04.1979, Mashhad, Iran

EDUCATION

- | | |
|------------------|--|
| 2010/8 - 2015/10 | PhD, Mechanical Engineering, Koç University, Istanbul, Turkey
Supervisors: Ismail Lazoglu |
| 2003/9 - 2006/1 | M.Sc., Mechanical Engineering, University of Ferdowsi, Mashhad, Iran
Supervisors: Behnam Moetakef-imani |
| 1997/9 - 2003/9 | B. Sc., Mechanical Engineering, Solid Mechanics, University of Ferdowsi, Mashhad, Supervisors: Abdolrahman Jaamialahmadi |

EXPERIENCES

Research Assistant

2002-2004, CAD/CAM laboratory of Ferdowsi University – Mashhad, Iran
Dynamic simulation of ball end milling and surface generation

Design and Manufacturing Engineer

2002-2003, Taha Ghaleb Cop.— Mashhad, Iran
Design and manufacturing of progressive blanking and piercing dies

Lecturer

2007-2009, Teaching "Computer Aided Modelling" and "Advance Technical Drawing" In multiple institutes and colleges such as: Higher Educational Institute of Khayyam, University of Applied Science and Technology, Khorasan Province Industrial and Scientific Advanced Training Centre – Mashhad, Iran

Design and Manufacturing Engineer

2008-2009, Farzan Cop.— Mashhad, Iran
Design and manufacturing of die/mold

PhD Research Assistant

2010-2015, Koc University – Istanbul, Turkey

Modelling of five-axis ball-end milling process for freeform surfaces

Postdoctoral Fellowship

2015-2016, Koc University – Istanbul, Turkey

Simulation of the manufacturing processes

Lecturer

2016, Teaching “Manufacturing Processes” at Koc University – Istanbul, Turkey

COURSES TAUGHT

2009-01	CAD/CAM, Khorasan Province Industrial and Scientific Advanced Training Center, Mashhad, Iran
2009-07	Course Topic: Computer Aided Design and Manufacturing Course Level: Undergraduate
2008-09	CAD/CAM, University of Applied Science and Technology (jahad daneshgahi), Mashhad, Iran
2009-07	Course Topic: Computer Aided Design and Manufacturing Course Level: Undergraduate
2008-01	CAD/CAM, Higher Educational Institute of Khayyam, Mashhad, Iran
2008-07	Course Topic: Computer Aided Design and Manufacturing Course Level: Undergraduate
2016-01	Manufacturing Processes, Koc University, Istanbul, Turkey
2016-07	Course Topic: Manufacturing Processes Course Level: Undergraduate

PUBLICATIONS

• **Journal Papers:**

1. Seyed Ehsan Layegh Khavidaki, Ismail Lazoglu. (2016). 3D Surface topography analysis in 5-axis ball-end milling. *CIRP Annals - Manufacturing Technology*. (Submitted)
2. Seyed Ehsan Layegh Khavidaki, Ismail Enes Yigit, Ismail Lazoglu. (2015). Analysis of tool orientation for 5-axis ball-end milling of flexible parts. *CIRP Annals - Manufacturing Technology*. 64(1): 97-100.
3. Ali Mamedov, Seyed Ehsan Layegh Khavidaki, Ismail Lazoglu. (2015). Instantaneous tool deflection model for micro milling. *The International Journal of Advanced Manufacturing Technology*. 79(5-8):769-777.
4. Kaan Erkorkmaz, Seyed Ehsan Layegh Khavidaki, Ismail Lazoglu, Huseyin Erdim. (2013). Feedrate optimization for freeform milling considering constraints from the feed drive system and process mechanics. *CIRP Annals - Manufacturing Technology*. 62(1): 395-398.
5. Behnam Motakef-Imani, Seyed Ehsan Layegh Khavidaki. (2008). Comprehensive simulation of surface texture for an end-milling process. *Scientia Iranica*. 15(3): 340-347.

• **Book Chapters:**

1. Ismail Lazoglu, Seyed Ehsan Layegh Khavidaki, Ali Mamedov. (2014). Thermal and mechanical analysis of machining Ti6Al4V and Inconel 718. *Machining of Titanium Alloys*: 57-78.
2. Ismail Lazoglu, Seyed Ehsan Layegh Khavidaki, Ali Mamedov, Huseyin Erdim. (2014). Process optimization via feedrate scheduling in milling. *CIRP Encyclopedia of Production Engineering*: 979-978.

3. Yaman Boz, Seyed Ehsan Layegh Khavidaki, Ismail Lazoglu, Huseyin Erdim. (2012). High performance five axis milling of complex sculptured surfaces. *Machining of Complex Sculptured Surfaces*: 67-125.

• **Conference Papers:**

1. Mohammad Akmal, S. Ehsan Layegh K., Ismail Lazoglu, Ali Akgun, Caglar Yavas. (2016). Comparison of coating materials and surface finishing techniques in high performance milling of aerospace grade titanium alloys. *Proceedings of 16th International Conference on Machine Design and Production. 16th International Conference on Machine Design and Production (UMTIK2017)*, 2017-06-12.
2. Ismail Enes Yigit, Seyed Ehsan Layegh Khavidaki, Ismail Lazoglu. (2015). A solid modeler based engagement model for 5-axis ball end milling. *Procedia CIRP Volume 31. 15th CIRP Conference on Modelling of Machining Operations (15th CMMO)*, 2015-06-11: 179-184.
3. Seyed Ehsan Layegh K, Ismail Enes Yigit, Ismail Lazoglu. (2014). The effect of tool orientation on five axis ball end milling of Ti6Al4V. *Proceedings of 16th International Conference on Machine Design and Production. 16th International Conference on Machine Design and Production (UMTIK2014)*, 2014-06-30.
4. Seyed Ehsan Layegh Khavidaki, Ismail Lazoglu. (2014). A new identification method of specific cutting coefficients for ball end milling. *Procedia CIRP Volume 14. 6th CIRP International Conference on High Performance Cutting, HPC2014*, 2014-06-23: 182–187.
5. Seyed Ehsan Layegh Khavidaki, Ismail Lazoglu, Huseyin Erdim. (2013). Tool deflection in five-axis milling. *Proceedings of 8th International Conference and Exhibition on Design and Production of Machines and Dies/Molds, 2013-06-20.*
6. Ali Mamedov, Seyed Ehsan Layegh Khavidaki, Ismail Lazoglu. (2013). Machining Forces and Tool Deflections in Micro Milling. *Procedia CIRP Volume 8. 14th CIRP Conference on Modeling of Machining Operations (CIRP CMMO)*, 2013-06-13:147-151.
7. Seyed Ehsan Layegh Khavidaki, Ismail Lazoglu, Huseyin Erdim. (2012). Effects of lead and tilt angles on cutting forces, torque and cutting power in five-axis sculptured surface milling. *Proceedings of the MTTRF 2012. MTTRF Annual Meeting 2012*, 2012-06-24.
8. Seyed Ehsan Layegh Khavidaki, Ismail Lazoglu, Huseyin Erdim. (2011). High performance 5-axis milling of complex free form surfaces via offline force control and feedrate scheduling strategy. *Proceedings of the MTTRF 2011. MTTRF Annual Meeting 2011*, 2011-07-06.
9. Behnam Moetakef-Imani, Seyed Ehsan Layegh Khavidaki. (2006). Comprehensive simulation of surface texture for end-milling process. *Proceedings of the 1st International Conference on Manufacturing and Materials Processing. 1st International Conference on Manufacturing and Materials Processing (ICMM 2006)*, 2006-01-01.
10. Ali Naserian, Majid Moavenian, Seyed Ehsan Layegh Khavidaki. (2007). Active control of the cutting conditions using piezoelectric sensors and actuators in micro-end-milling operation. *2nd International Conference on Manufacturing Engineering (TICME 2007)*, Tehran, Iran. (In Persian).
11. Behnam Moetakef-Imani, Seyed Ehsan Layegh Khavidaki, Sayyed Ali Hoseini. (2007). Calculation of cutting force coefficients for Al7075 to predict the milling forces. *15th Annual International Conference on Mechanical Engineering (ISME2007)*, Amir Kabir University of Technology, (In Persian)
12. Behnam Moetakef-Imani, Seyed Ehsan Layegh Khavidaki. (2006). Prediction of cutting forces, dimensional error and surface texture in end milling. *14th Annual International Conference on Mechanical Engineering (ISME2006)*, 2006, Isfahan, Iran. (In Persian).

DISSERTATIONS:

1. *Modeling of Five-axis Ball-End Milling Process for Freeform Surfaces*. (2015). Koc University, Istanbul, Turkey. PhD thesis.

2. Dynamic simulation of surface texture and dimensional error in flat end-milling operation. (2006). University of Ferdowsi, Mashhad, Iran. M.Sc. Thesis.
3. Dynamic simulation of industrial flexible linkages using FEM. (2003). University of Ferdowsi, Iran. B.Sc.

AWARDS

2010-2015 The Koc University Scholarship, The Vehbi Koc Foundation [100%].
2015-2017 The Postdoctoral Fellowship Grant, KARCAN Cutting Tools [100%].

RESEARCH INTERESTS

- Mechanics and Dynamics of Machining Processes
- Cutter/Workpiece Engagement Modelling
- Virtual High Performance Machining
- Modelling of Micro Machining Operations
- Machine Tool Design
- Surface Integrity
- Additive Manufacturing

SKILLS

- MATLAB, Simulink, C#
- SolidWorks, NX, AutoCAD, Parasolid
- Esprit, Computer aided manufacturing software (CAM)
- ANSYS, ABAQUS, COMSOL
- Finite Element Analysis
- LabVIEW
- CutPro
- Sensors (Dynamometer, Accelerometer, Impact Hammer, Load cell, Laser displacement sensors, etc.)
- Data acquisition and analysis
- CMM
- CNC G-code programming
- Machining operations (Milling, Turning)
- Die/Mold design and fabrication
- Machine design
- Rapid-prototyping techniques
- Scanning electron microscope (SEM)
- X-ray crystallography (XRD)

LANGUAGES

English (Advanced), Turkish (Elementary), Farsi (native)

REFERENCES

Ismail Lazoglu

Professor of Mechanical Engineering, Koc University,
Rumeli Feneri Yolu, Sariyer, 34450, Istanbul, Turkey,
ilazoglu@ku.edu.tr, <http://home.ku.edu.tr/~ilazoglu/>

SEYED EHSAN LAYEGH KHAVIDAKI

Erhan Budak

Professor of Mechanical Engineering, Sabanci University,
Orhanli, 81474 Tuzla, Istanbul, Turkey,
ebudak@sabanciuniv.edu, <http://labs.sabanciuniv.edu/mrl/>

Behnam Moetakef-Imani,

Professor of Mechanical Engineering, Ferdowsi University,
Azadi Sq., Mashhad, Iran.
imani@ferdowsi.um.ac.ir, <http://profsite.um.ac.ir/~imani/>