

İSMAİL ENES YİĞİT



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I am a mechatronics engineer with mechanical Ph.D. I like to build and conduct research on systems where I am involved in electronics, mechanics, and the software that runs them. I am interested in leading large industrial and academic projects where the academy and the industry can join forces to build a better future.

Education

- 2013 - 2020:** Ph.D. Koç University Mechanical Engineering (3.88/4.0)
2012 - 2013: B.Sc. Rutgers University Applied Sciences and Engineering (3.43/4)
2009 - 2012: B.Sc. Bahçeşehir University Mechatronics Engineering (3.17/4)
2005 - 2009: Bostancı Doğa High School (84.02/100)

Publications

- ◆ Hussain, A., Layegh, S.E., Lazoglu, I., Arrazola, P.J., Lazcano, X., Aristimuño, P.X., Subasi, O., Yigit, I.E., Öztürk, Ç. and Yavaş, Ç., [Mechanics of milling 48-2-2 gamma titanium aluminide](#). *CIRP Journal of Manufacturing Science and Technology* 30 (2020): 131-139.
- ◆ Yigit, I.E., Lazoglu, I. [Spherical slicing method and its application on robotic additive manufacturing](#). *Progress in Additive Manufacturing* (2020).
- ◆ Yigit, I.E., Lazoglu, I. [Helical slicing method for material extrusion-based robotic additive manufacturing](#). *Progress in Additive Manufacturing* 4, 225–232 (2019).
- ◆ Yigit, I. E., Lazoglu I. [Dynamic Build Bed for Additive Manufacturing](#). *Solid Freeform Fabrication 2019: Proceedings of the 30th Annual International Solid Freeform Fabrication Symposium – An Additive Manufacturing Conference*
- ◆ Yigit, I. E., Isa, M. A. and Lazoglu, I. [Additive Manufacturing with modular support structures](#). *Solid Freeform Fabrication 2018: Proceedings of the 29th Annual International Solid Freeform Fabrication Symposium – An Additive Manufacturing Conference*
- ◆ Isa, M. A., Yigit, I. E., and Lazoglu, I. [Analysis of Build Direction in Deposition-Based Additive Manufacturing of Overhang Structures](#). *Solid Freeform Fabrication 2018: Proceedings of the 29th Annual International Solid Freeform Fabrication Symposium – An Additive Manufacturing Conference*
- ◆ Yigit, I. E., Khan, S. A., and Lazoglu, I. [Robotic Additive Manufacturing of Tooling for Composite Structures](#). *The 18th International Conference on Machine Design and Production (UMTIK), 2018.*
- ◆ S. E. Layegh K., Yigit, I. E., and Lazoglu, I. "[Analysis of tool orientation for 5-axis ball-end milling of flexible parts.](#)" *CIRP Annals-Manufacturing Technology* 64.1 (2015): 97-100.
- ◆ Yigit, I. E., S. E. Layegh K., and Ismail Lazoglu. "[A solid modeler based engagement model for 5-axis ball end milling.](#)" *Procedia CIRP* 31 (2015): 179-184.
- ◆ S. E. Layegh K., I. E. Yigit, and I. Lazoglu, "[The effect of tool orientation on five axis ball end milling of ti6al4v.](#)" in *The 16th International Conference on Machine Design and Production (UMTIK), 2014.*
- ◆ A. Mamedov, I. E. Yigit, and I. Lazoglu, "[Force model for micro milling of free form surfaces.](#)" in *The 16th International Conference on Machine Design and Production (UMTIK), 2014.*
- ◆ Bank, H.S., Yigit, I.E., Bicer, M., Mazzeo, A. "[Paper-based Touch Pads with a Reduced Number of Multiplexed Wires](#)" *ASME IMECE 2013 Conference IMECE 2013-64944*

Experience

Principal Software & Research Engineer

2018 to 2020

Developed software for two major products at [Sintertek](#) additive manufacturing company.

- Developed the software for the binder jet based metal printer: Multithread Slicing of the models, Control of the electromechanical system, Control of the Meteor Inkjet, etc.

- Helped in the development of the software for powder bed fusion printer Solidzer 450 Pro: Thin feature detection using Voronoi diagrams, PLC motion control, surface temperature control with a thermal camera, etc.

Graduate Research Assistant**2013 to 2018**

Worked on several different topics at Koç University Manufacturing and Automation Research Center

- Conducted research on robotic additive manufacturing. Writing slicing algorithms in VS C++ environment and testing the results on Motoman HP20 Industrial robotic arm.
- Conducted research for Ford Motor company on Predictive Cruise Control systems. Modeled & simulated a truck to find throttle levels that optimize fuel consumption without impacting travel times.
- Conducted research on machining. Modeled the engagement surface between the tool and the workpiece. Validated results on a 5-axis Mori Seiki milling machine.

Graduate Teaching Assistant**2013 to 2018**

Conducted teaching assistantship for well-known professors at Koç University

- Mechatronics [Mech542](#)
- Introduction to Mechanical Engineering Design [Mech203](#)
- Dynamics [Mech206](#)
- Finite Mathematics [Math101](#)

Internship**Summer 2012**

Practiced in the research and development department of [Esit](#) as an intern in 2012. Had experience in product development, user interface development, embedded programming, control devices, and automatic weighing system.

Internship**Summer 2011**

Was an intern at [Sys-Robot Technologies](#) in 2011 Acquired experience on Fanuc Robot Controllers specialized in different welding operations and automation fixtures. Also, I used Solid Works to assist various part designs and used CAM2Q software with the Faro-Arm to measure and calibrate the fixtures.

Internship**Summer 2011**

Worked part-time at the workshop of [Mertled](#) Co. in 2011 and gained experience in fundamental electronics, design-fabrication, soldering operations, and embedded C programming.

Internship**Summer 2010**

Completed internship during summer in 2010 at the research and development department of [ESTA](#) GROUP and got experience on energy projects specifically on LPG and gas stations, automation of LPG stations, PLC's, and control panels.

Projects◆ **Teydeb Tubitak 1512 Proje No: 2200136**

Government agency funding for development and commercialization of collaborative robotic arm joint inside the ODTÜ Technopark

- ◆ Robotic Additive Manufacturing
- ◆ [Tangible orb interface for viewing of CAD \(Computer-aided design\) models](#)
- ◆ Design and development of Stewart Platform
- ◆ Design and development of Desktop Milling Machine

Skills

- ◆ **CAD/CAM software:** SolidWorks, NX Siemens PLM Software, AutoCAD
- ◆ **Engineering Simulation & Analysis:** Matlab, Simulink, ANSYS Workbench
- ◆ **Programming:** .NET, C#, WPF, C++, C, Python, OpenGL computer graphics
- ◆ **Other:** Fluent in Windows, Linux, and MS-Office
- ◆ **Automation:** Motoman Robots, Mitsubishi Robots, and Fanuc Robots
- ◆ Read and analyze technical journals
- ◆ Basic machine shop experience including milling and lathe machines
- ◆ **Language:** **Turkish:** Native, **English:** Fluent (Studied in USA for 3 years), **Spanish:** Elementary