

Curriculum Vitae

Samet AKAR, Ph.D.

(a.k.a. Samad Nadimi Babil Oliaei)

Office: L-A22, Dept. of Mechanical Engineering
Çankaya University, Ankara, Turkey. (Part-time Instructor)
Email: samet.akar@cankaya.edu.tr

EDUCATION:

Ph.D. (09. 2011 – 08. 2016) Dept. of Mechanical Engineering, Bilkent University, Ankara, Turkey.

Specialization: Micromachining

Dissertation Title: " *Design and fabrication of micro end mills for the machining of difficult-to-cut materials*

M.Sc. (09.2005 – 07.2007) Dept. of Mechanical Engineering, University of Tabriz, Iran. Thesis: *Investigation and Analysis of Weld Induced Residual Stresses in Two Dissimilar Pipes by Finite Element Modeling* (With Honors)

B.Sc. (09.2001 – 05.2005) Manufacturing and Production Engineering, University of Applied Science and Technology, Tabriz, Iran. (With Honors)

RESEARCH INTERESTS:

Finite Element Analysis

Micromachining

Nontraditional Machining Processes

Metal Cutting and Machine Tool Dynamics

Composite Materials

Additive Manufacturing

Metrology

LANGUAGES:

- Fluent in English, Turkish and Persian

PROFESSIONAL EXPERIENCE:

Assistant Professor, March 2020-ongoing

Dept. of Mechanical Engineering

Çankaya University, 06790, Ankara, Turkey

Courses Taught: ME 210 – Manufacturing Processes

ME 312 – Experimentations and Measurement

ME 402 – Introduction to Finite Element Analysis

Assistant Professor, April 2017-January 2020

Dept. of Mechanical Engineering

ATILIM University, 06836, Ankara, Turkey

Courses Taught: MFGE 108 – Computer Aided Solid Modeling
MFGE 205 – Introduction to Manufacturing Processes
ME 452 – Introduction to Fluid Power Control
ME 403 – Design of Mechanical Systems
ME 425– Mechanical Vibrations

Post-doctoral Research Associate, August 2016-April 2017
Micro-system Design and Manufacturing Research Center,
Bilkent University, Ankara, Turkey.

Teaching Assistant, Academic Year 2011- August 2016
Dept. of Mechanical Engineering, Bilkent University, Ankara, Turkey
Courses : ME 231 – Mechanics and Materials I
ME 232 – Mechanics and Materials II
ME 381 – Design and Manufacturing
ME 557 – Metal Cutting Principles

Instructor (Part-time) , Spring 2005 to Fall 2007

Welding and Sheet Metal Forming Workshops, University of Tabriz, Tabriz, Iran.

Manufacturing Processes, Non-Destructive Testing, Computer Aided Design, Azerbaijan
Higher Education and Research Center, Tabriz, Iran.

Arc Welding Technologies, Destructive & Non- Destructive Testing, Computer Aided
Design, Sama Technical & Vocational College, Mameghan, Iran.

PROJECTS:

“A Coupled Molecular Dynamics and Finite Element Modeling for Micromachining of Aluminum Alloys with Experimental Verification”, Funded by ATILIM University, Scientific Research Projects (ATU-BAP-1617-05): 06/2017-06/2018. (Principal Investigator)

“Design and Fabrication of Micro Injection Molding Machine”, Funded by ATILIM University, (ATU-LAP-1718): 10/2017-06/2018. (Principal Investigator)

Concurrent Optimization of Aircraft Structures and Structural Test Components using Probabilistic Methods, funded by TÜBİTAK 1001: 02/2011-08/2011 (Researcher).

Design and Fabrication of Polycrystalline Diamond Micro End Mills, Funded by TÜBİTAK 3501: 09/2011-04/2014 (Researcher).

Machining of Brittle Materials with Nano-structured Diamond Tools, Funded by TÜBİTAK 1001: 09/2015-01/2017(Researcher).

INVITED TALKS:

Challenges in Micro Tool Design and Fabrication, March 21, 2018, Sabanci University.

Micromachining of Difficult-to-cut Materials Using Tailored Micro Cutting Tools, December 30, 2017, MEF University.

Ph.D. THESIS SUPERVISED:

Babak Sadizadeh, A new approach for modeling honing process of engine block cylinders, University of Tehran, Department of Mechanical Engineering, (Co-supervisor)- (Ongoing)

M.Sc. THESIS SUPERVISED:

Rake Lotfy Nakka, Finite Element Modeling of Machining Particulate Metal Matrix Composites, ATILIM University, Department of Manufacturing Engineering, (June 2018)- (Co-Supervisor)

Hassan Meshri, An Investigation into the Micro-Wire Electro Discharge Machining of Shape Memory Alloy, ATILIM University, Department of Manufacturing Engineering, (Dec. 2019)

Okan Deniz Yilmaz, Prediction of Shear Localization Onset in Machining of Ti6Al4V, ATILIM University, Department of Manufacturing Engineering, (Dec. 2019)

PROGRAMMING LANGUAGES & SOFTWARE:

Programming: MATLAB, FORTRAN

CAD/CAM: Siemens NX, SolidWorks, Mastercam, SolidCAM, Cimatron

CAE: ABAQUS, ANSYS, COMSOL, DEFORM, Digimat, MCalibration

Signal Processing: LabVIEW, NI-DIAdem

MD Simulation: LAMMPS

METROLOGY RELATED EXPERIENCE:

Laser Scanning Microscopy

Coordinate Measuring Machine (CMM)

Tolerance Analysis

CITATIONS:

	Google Scholar	Scopus	ISI Web of Science
Sum of times cited	544	280	244
H-index	12	10	10

PUBLICATIONS:

Journal Papers

Sadizade, B., Araee, A., Oliaei, S. N. B., & Farshi, V. R. (2020). Plateau honing of a diesel engine cylinder with special topography and reasonable machining time. *Tribology International*, 106204.

Ayan, A., Turkay, D., Unlu, B., Naghinazhadahmadi, P., Oliaei, S. N. B., Boztug, C., & Yerci, S. (2019). Strain Engineering of Germanium Nano-beams by Electrostatic Actuation. *Nature-Scientific reports*, 9(1), 4963.

Oliaei, S. N. B., & Karpat, Y. (2019). Modelling and analysis of tool deflections in tailored micro end mills. *International Journal of Mechatronics and Manufacturing Systems*, 12(1), 20-37.

Oliaei, S. N. B., Karpat, Y., Davim, J. P., & Perveen, (2019) A. Micro tool design and fabrication: A

review. *Journal of Manufacturing Processes*, 36, 496-519.

Karpat, Y., Kanli, M., & Oliaei, S. N. B. (2018). Mechanistic modeling of micro milling including tool run-out. *Journal of the Faculty of Engineering and Architecture of Gazi University*, 33(2), 739-748.

Oliaei, S. N. B., & Karpat, Y. (2018). Polycrystalline diamond end mill cutting edge design to improve ductile-mode machining of silicon. *Precision Engineering*, 51, 403-414.

Jafari, R., Kahya, M., Oliaei, S. N. B., Ünver, H. Ö., & Özyurt, T. O. (2017). Modeling and analysis of surface roughness of microchannels produced by μ -WEDM using an ANN and Taguchi method. *Journal of Mechanical Science and Technology*, 31(11), 5447-5457.

Oliaei, S. N. B., & Karpat, Y. (2017). Built-up edge effects on process outputs of titanium alloy micro milling. *Precision Engineering*, 49, 305-315.

Oliaei, S. N. B., & Karpat, Y. (2017). Investigating the influence of friction conditions on finite element simulation of microscale machining with the presence of built-up edge. *The International Journal of Advanced Manufacturing Technology*, 90(1-4), 819-829.

Sadigh, B. L., Oliaei, S. N. B., & Davdandipour, S. (2017). An Ontology Based Semantic Machine Tool Selection for Multi Scale Wire EDM Processes. In *Solid State Phenomena* (Vol. 261, pp. 470-477). Trans Tech Publications

Oliaei, S. N. B., & Karpat, Y. (2016). Investigating the influence of built-up edge on forces and surface roughness in micro scale orthogonal machining of titanium alloy Ti6Al4V. *Journal of Materials Processing Technology*, 235, 28-40.

Oliaei, S. N. B., & Karpat, Y. (2016). Influence of tool wear on machining forces and tool deflections during micro milling. *The International Journal of Advanced Manufacturing Technology*, 84(9-12), 1963-1980.

Yavuz, C., Oliaei, S. N. B., Cetin, B., & Yesil-Celiktas, O. (2016). Sterilization of PMMA microfluidic chips by various techniques and investigation of material characteristics. *The Journal of Supercritical Fluids*, 107, 114-121.

Zeinali, S., Çetin, B., Oliaei, S. N. B., & Karpat, Y. (2015). Fabrication of continuous flow microfluidics device with 3D electrode structures for high throughput DEP applications using mechanical machining. *Electrophoresis*, 36(13), 1432-1442.

Oliaei, S. N. B., Özdemir, C., & Karpat, Y. (2014). On-machine fabrication of PCD and WC micro end mills using micro electro discharge machining. *International Journal of Mechatronics and Manufacturing Systems* 7, 7(4-6), 246-264.

Kalajahi, M. H., Ahmadi, S. R., & Oliaei, S. N. B. (2013). Experimental and finite element analysis of EDM process and investigation of material removal rate by response surface methodology. *The International Journal of Advanced Manufacturing Technology*, 69(1-4), 687-704.

Shabgard, M., Ahmadi, R., Seyedzavvar, M., & Oliaei, S. N. B. (2013). Mathematical and numerical modeling of the effect of input-parameters on the flushing efficiency of plasma channel in EDM process. *International Journal of Machine Tools and Manufacture*, 65, 79-87.

Shabgard, M., Oliaei, S. N. B., Seyedzavvar, M., & Najadebrahimi, A. (2011). Experimental investigation and 3D finite element prediction of the white layer thickness, heat affected zone, and surface roughness in EDM process. *Journal of mechanical science and technology*, 25(12), 3173-3183.

Shabgard, M. R., Seyedzavvar, M., & Oliaei, S. N. B. (2011). Influence of input parameters on characteristics of EDM process. *Strojniški vestnik-Journal of Mechanical Engineering*, 57(9), 689-696.

Conference Papers

Dadvandipour, S., Oliaei S. N. B., (2018), On the Digital Manufacturing Development Applying Engineering Informatics as a Discipline of Field Study, 19th International Carpathian Control Conference, Hungary.

Rake, N. L., Oliaei, S. N. B., Kilic, S. E., (2018), Finite Element Modeling of Machining Particle-reinforced Aluminum Metal Matrix Composites, 18th International Conference on Machine Design and Production (UMTIK), Eskisehir, Turkey.

Karpat, Y., Oliaei, S. N. B., (2018), Influence of cutting edge micro geometry on polycrystalline diamond micro milling of silicon, 14th International Conference on High Speed Machining (HSM 2018), Kursaal, San Sebastian – Spain.

Oliaei, S. N. B., Eivazzadeh, M., Davdandipour, S., (2017), Finite Element Modeling of Incremental Sheet Metal Forming of Aluminum Alloy Al 1100, XIV International Congress Summer Session "Machines. Technologies. Materials", Varna, Bulgaria, pp. 254-257.

Oliaei, S. N. B., & Karpaz, Y. (2016). Fabrication of PCD Mechanical Planarization Tools by using μ -Wire Electrical Discharge Machining. *Procedia CIRP*, 42, 311-316.

Oliaei, S. N. B., Karpaz Y., (2016), Influence of WEDM Strategies on Surface Roughness of Tungsten Carbide, The 17th International Conference on Machine Design and Production, Bursa, Turkey.

Oliaei, S. N. B., Özdemir, C., & Karpaz, Y. (2013). Fabrication of Micro Ball End Mills Using Micro Electro Discharge Machining. In 7th International Conference and Exhibition on Design and Production of Machines and Dies/Molds (pp. 20-23).

Oliaei, S. N. B., & Karpaz, Y. (2014). Experimental investigations on micro milling of Stavax stainless steel. *Procedia CIRP*, 14, 377-382.

Oliaei, S. N. B., Kanlı, M., Karpaz, Y., (2016), Mechanistic Modeling of Micro Milling Including Tool Run-Out, 7th International Symposium On Machining, Marmara University, Istanbul, Turkey.

Oliaei, S. N. B., Karpaz Y., (2015), An Investigation of Ductile Regime Machining of Fused Silica Glass Using PCD Micro Tools, 8th International Conference and Exhibition on Design and Production of MACHINES and DIES/MOLDS, Aydin, Turkey.

Oliaei, S. N.B., Karpaz, Y., (2012), Multi-scale Milling Force Modeling through a Finite Element Simulation Based Metamodel, 15th International Conference on Machine Design and Production (UMTIK), Pamukkale, Denizli, Turkey.

Karimzadeh, A., Yousefi, A., Hosseini, M., Khushehmehr, R.J., Oliaei, S.N.B., (2012), Analysis of the Effect of Residual Stresses on Fatigue Life of Tubular Members by Finite Element Modeling, 15th International Conference on Machine Design and Production (UMTIK), Pamukkale, Denizli, Turkey.

Ergür A., Oliaei, S.N.B., Karpaz, Y., (2012), Design and Fabrication of Micro Cutting Tools Using Micro Electro Discharge Machining (μ -EDM), 15th International Conference on Machine Design and Production, Denizli, Turkey.

Shotorbani, R. M., Hosseini, S. H., Morsali M., Oliaei, S.N.B., (2011), Finite element analysis of chip formation process in orthogonal machining on steel AISI 1045, 14th Int. Conference on Advances in Materials & Processing Technologies, Istanbul, Turkey.

Shotorbani, R. M., Hosseini, S. H., Morsali M., Oliaei, S.N.B., (2011), NC machine tool interference detection in three axis for complex three-dimensional surfaces, 14th Int. Conference on Advances in Materials & Processing Technologies, 13-16 July, Istanbul, Turkey.

Dolatshahi, H., Oliaei, S.N.B., Sattari, M., (2011), Finite Element Analysis of the Effect of Crater Wear on Machining Forces and Temperature, 6th International Conference and Exhibition on Design and Production of Machines and Dies/Molds, Ankara, Turkey.

Dadvandipour, S., Oliaei, S.N.B., Lotfi Sadigh, B., Salimi, Y., (2009), Development of a New Quick- Stop Device for the Study of Chip Formation in Turning, 5th International Conference and Exhibition on Design and Production of Machines and Dies/Molds, Kusadasi, Aydin, Turkey.

Oliaei, S.N.B., Naghinazhad Ahmadi, P., Rohani, B., (2009), Finite Element Analysis of Temperature Field and Residual Stresses in a Multi-Pass Tubular TT Joint, International Conference on Advanced Manufacturing and Automation (INCAMA-2009), Tamil Nadu, India.

Mostafapour A., Oliaei, S.N.B., Naghinazhad Ahmadi, P., (2009), Investigation and analysis of weld induced residual stresses in two dissimilar plates by finite element modeling, International Conference on Advanced Manufacturing and Automation (INCAMA-2009), Tamil Nadu, India.

Khoushehmehr, R. J., Lotfi Sadig, B., Rohani, B., Oliaei, S.N.B., (2008), On-line tool breakage detection from feed drive current in CNC lathe machine, 13th International Conference on Machine Design and Production (UMTIK), 03-05 October, Istanbul, Turkey.

Oliaei, S.N.B., Naghinazhad Ahmadi P., Rohani, B., Shotorbani, R., (2008), Temperature Field and Residual Stresses in Multi-Pass T-Fillet Joint by Finite Element Method, 13th International Conference on Machine Design and Production (UMTIK), Istanbul, Turkey.

Shotorbani, R., Oliaei, S.N.B., Dadvandipour, S., (2008), Examination of Machining Parameters on the Machining Characteristics in EDM of Tool Steel with Different Types of Electrode Materials, 13th International Conference on Machine Design and Production (UMTIK), Istanbul, Turkey.

Malekpour, M., Rohani, B., Oliaei, S.N.B., (2008), Modern infra-red thermography application for corrosion detection in power plants equipment, 1st Specialized Seminar on Welding Inspection and Non-Destructive Testing, Tabriz, Iran.

Oliaei, S.N.B., Mostafapour, A., (2007), Investigation on weld induced residual stresses in butt welding of SAE1020 Plates", 8th National Conference of Iran Welding Inspection (IWNT), Tehran, Iran.

Mostafapour, A., Oliaei, S.N.B., Chakherlou, T. N., (2007), Finite Element Analysis of Residual Stresses in

Two Dissimilar Plates, Conference on Applications and Design in Mechanical Engineering, Kangar, Perlis, Malaysia.

Oliaei, S.N.B., Mostafapour, A., Chakherlou, T. N., (2007), Finite Element Analysis of Weld Induced Residual Stresses in Two Dissimilar Pipes, 2nd Int. Conference on Manufacturing Engineering, IUST, Tehran, Iran.

Rohani, B., Oliaei, S.N.B., Abachizadeh, S., (2006), New Generation of Brushless Electric Machines, 3rd Int. Conference on Technical & Physical Problems in Power Engineering, Ankara, Turkey.

Book Chapter

Asma Perveen, Samad Nadimi Babil Oliaei, (2018), Spark Erosion Machining of Aerospace Alloys, Spark Erosion Machining: MEMS to Aerospace (Editors: Prof. N K Jain and Dr. Kapil Gupta), Publisher: CRC Press.

Oliaei, S. N. B., Jahan, M. P., & Perveen, A. (2019). Micro-EDM Drilling. In *Micro-electrical Discharge Machining Processes* (pp. 1-21). Springer, Singapore.

Oliaei, S. N. B., Nasser, B., (2020) Stereolithography and Its Applications, In *Additive and Subtractive Manufacturing. Emergent Technologies*, Davim, J. (Ed.), Berlin, Boston: De Gruyter.