

OMER SUBASI

• osubasi1993@gmail.com • ORCID: 0000-0002-8383-6000 • Google Scholar • LinkedIn

*I am a **Mechanical and Biomedical engineer**. I am currently a **Lecturer at Yale University**. My research areas are Biomechanics, Orthopaedics, Manufacturing, and Global Health. I am also a senior collaborator with the Global Burden of Disease (GBD) collaborative at the Institute for Health Metrics and Evaluation (IHME).*

ACADEMIC EMPLOYMENT

YALE UNIVERSITY , New Haven, CT <i>Lecturer, Department of Mechanical Engineering</i>	2025-Present
NORTHEASTERN UNIVERSITY , Boston, MA <i>Adjunct Professor, Department of Bioengineering</i>	2024-2025
HARVARD MEDICAL SCHOOL, MASSACHUSETTS GENERAL HOSPITAL , Boston, MA <i>Postdoctoral Fellow & Lead Engineer at Foot and Ankle Research and Innovation Laboratory</i>	2022-2024

EDUCATION

KOC UNIVERSITY , Istanbul, Turkey <i>Ph.D. in Biomedical Engineering, Thesis Title: "Novel Implant Designs and Surgical Guidelines in Orthopaedics"</i>	August 2021
CALIFORNIA INSTITUTE OF TECHNOLOGY (CALTECH) , Pasadena, CA <i>Bachelor of Science with Honors in Mechanical Engineering</i>	June 2016

PEER-REVIEWED JOURNAL PUBLICATIONS (23 Total, 13 First Author)

23. Taseh A, **Subasi O**, Karaismailoglu B, Detels K, Ghandour S, Rai C, Waryasz G, Ashkani-Esfahani S, Landsman AS. "Arch-supports and plantar fasciitis: A prospective study incorporating patient-reported outcomes and finite element analysis." *Journal of Experimental Orthopaedics*. DOI: 10.1002/jeo2.70732. Vol. 13(2). 2026.
22. Schluter R, McLeod H, Ebrahimi A, **Subasi O**, Gedik CC, Aslan L, Ashkani-Esfahani S, Kwon JY. "The effect of electrical bone stimulation on bone union in foot and ankle injuries: A scoping review." *Acta Orthopaedica et Traumatologica Turcica*. DOI: 10.5152/j.aott.2025.25756. Vol. 59(6), pp. 349-360. 2025.
21. Karaismailoglu B, **Subasi O**, Tung WS, Ozturk B, Demirci E, Celayir A, Sevgil BS, Kargin F, Aydingöz Ö, Aydın N, DiGiovanni CW, Ashkani-Esfahani S. "Improving subtalar arthrodesis with a skin-matched patient-specific surgical guide: A comparative cadaveric study." *Acta Orthopaedica et Traumatologica Turcica*. DOI: 10.5152/j.aott.2025.255412025. Vol. 59(6), pp. 368-373. 2025.
20. Aslan L¹, **Subasi O**¹, Karaismailoglu B, Gedik CC, Yuruk B, Esfahani SA, Eren I. "In silico assessment of talus osteochondral lesion size and location on biomechanical load distribution using tilted talar dome planes." *Acta Orthopaedica et Traumatologica Turcica*. DOI: 10.5152/j.aott.2025.25444. Vol. 59(6), pp. 361-367. 2025.
19. Burgesson B, Ebrahimi A, **Subasi O**, Ashkani-Esfahani S, Kwon YK. "Getting the Starting Point Correct: A Technique Tip for Accurate Placement of Hindfoot Fusion Nails" *Foot & Ankle Orthopaedics*, DOI: 10.1177/24730114241247818. Vol 9(2), 2024.
18. **Subasi O**¹, Sharma S¹, Karaismailoglu B, Hresko A, Waryasz G, Ashkani-Esfahani S, Bejarano-Pineda L. In silico comparative biomechanical analysis of oblique and chevron medial displacement calcaneal osteotomies for pes planus deformity. *Computers in Biology and Medicine*. DOI: 10.1016/j.compbiomed.2024.107945. Vol 169, 107945, 2024.
17. Aslan L¹, **Subasi O**¹, Gedik CC, Birsal O, Lazoglu I, Demirhan M, Eren I. "In silico analysis of rib force distribution in postscapulothoracic arthrodesis model.", *Journal of Orthopaedic Research*. DOI: 10.1002/jor.25771. Vol. 42(5), pp. 942-949, 2024.
16. **Subasi O**, Karaismailoglu B, Ashkani-Esfahani S, Lazoglu I. "Investigation of Lattice Infill Parameters for Additively Manufactured Bone Fracture Plates to Reduce Stress Shielding.", *Computers in Biology and Medicine*. DOI: 10.1016/j.compbiomed.2023.107062. Vol. 161, 107062, 2023.

PEER-REVIEWED PUBLICATIONS (Continued)

15. Karaismailoglu B, Altun AS, **Subasi O**, Sharma S, Peiffer M, Ashkani-Esfahani S, DiGiovanni CW, Bejarano-Pineda L. Comparison between achilles tendon reinsertion and dorsal closing wedge calcaneal osteotomy for the treatment of insertional achilles tendinopathy: A meta-analysis. *Foot & Ankle Surgery*. DOI: 10.1016/j.fas.2023.09.010. 4: S1268-7731(23)00188-1. Vol. 30(2), pp. 92-98, 2024.
14. Aslan L¹, **Subasi O**¹, Mizikoglu D, Birsal O, Kirisci ST, Bas A, Arshad M, Lazoglu I, Seyahi A, "A new checklist surgical hand scrub to replace time-based methods – A pixel intensity analysis", *The Surgeon*. DOI: 10.1016/j.surge.2023.04.002. Vol 21(6), pp. 344-350, 2023.
13. **Subasi O**, Aslan L, Oral A, Demirhan M, Seyahi A, Lazoglu I. "Intraoperative Fluoroscopic Safety Assessment of Femoral Head Implants with 3-dimensional Risk Parameters to Minimize Cut-Out", *Acta Orthopaedica et Traumatologica Turcica*. DOI: 10.5152/j.aott.2023.22175. Vol 57(4), pp. 134-140, 2023.
12. Oral A, **Subasi O**, Sahin C, Haque UU, Lazoglu I, "Effect of Starting Position of Crankshaft on Transient Body Vibrations of Reciprocating Compressor", *International Journal of Refrigeration*. DOI: 10.1016/j.ijrefrig.2022.12.028. Vol 149, pp. 135-145, 2023.
11. **Subasi O**, Aslan L, Demirhan M, Seyahi A, Lazoglu I, "A novel lower bound for tip-apex distance", *European Journal of Trauma and Emergency Surgery*. DOI: 10.1016/j.s00068-020-01514-x. Vol 48(3), pp. 1787-1798, 2022.
10. Oral A, **Subasi O**, Ozturk C, Lazoglu I, Subay ŞA, "A Novel Approach to Tube Design via von Mises Probability Distribution" *Engineering Optimization*. DOI: 10.1080/0305215X.2022.2152808. Vol 56(3), pp. 319-337, 2024.
9. Oral A, **Subasi O**, Korkmaz C, Lazoglu I, "A Novel Transient Vibration Reducer (TVR) Design for Reciprocating Compressors", *Applied Acoustics*. DOI: 10.1016/j.apacoust.2022.109139. Vol 201, 2022.
8. **Subasi O**, Oral A, Noyan S, Tuncozgun O, Lazoglu I, "In silico analysis of modular bone plates", *Journal of the Mechanical Behavior of Biomedical Materials*, DOI: 10.1016/j.jmbbm.2021.104847, Vol 124, 104842, 2021.
7. **Subasi O**, Oral A, Torabnia S, Erdogan D, Erdogan M, Lazoglu I, "In Silico Analysis of Elastomer-Coated Cerclage for Reducing Sternal Cut-Through in High-Risk Patients", *ASME. Journal of Biomechanical Engineering*. DOI:10.1115/1.4050912. Vol 143(9), 091007, 2021.
6. Aslan L¹, **Subasi O**¹, Demirhan M, Seyahi A, Lazoglu I, "The safety and accuracy of the fluoroscopic imaging during proximal femoral fixation: A computerized 3D reappraisal of the joint penetration risk", *Injury*. DOI: 10.1016/j.injury.2020.11.064. Vol 52(6), pp. 1450-55, 2021.
5. **Subasi O**, Torabnia S, Lazoglu I, "In silico analysis of Superelastic Nitinol staples for trans-sternal closure", *Journal of the Mechanical Behavior of Biomedical Materials*. DOI: 10.1016/j.jmbbm.2020.103770. Vol. 107, 103770, 2020.
4. Hussain A, Layegh SEK, Lazoglu I, Arrazola PJ, Lazcano X, Aristimuño P-X, **Subasi O**, Yigit IE., Öztürk C, Yavaş Ç, "Mechanics of milling 48-2-2 gamma titanium aluminide", *CIRP Journal of Manufacturing Science and Technology*. DOI: 10.1016/j.cirpj.2020.05.001, Vol. 30, pp.131-9, 2020.
3. Hussain A, **Subasi O**, Lazoglu I, "A novel sensor using photo-interrupter for measuring static friction coefficient", *Journal of Mechanical Science and Technology*. DOI:10.1007/s12206-020-0509-5, Vol. 34(6), 2020.
2. **Subasi O**, Oral A, Lazoglu I, "A novel adjustable locking plate (ALP) for segmental bone fracture treatment", *Injury*. DOI: 10.1016/j.injury.2019.08.034, Vol 50(3), pp.1612-19, 2019.
1. **Subasi O**¹, Yazgi SG¹, Lazoglu I, "A novel triaxial optoelectronic based dynamometer for machining processes", *Sensors & Actuators: A. Physical*. DOI: 10.1016/j.sna.2018.06.019. Vol. 279, pp.168-177, 2018.

BOOK CHAPTERS

- Gullu B, **Subasi O**, Aslan L (2024). "Biomechanics of the Foot and Ankle." In: Sharma, S., Karaismailoglu, B., Ashkani-Esfahani, S. (eds) *Clinical and Radiological Examination of the Foot and Ankle*. Springer, Singapore. DOI: 10.1007/978-981-97-4202-8_2. pp.11-32, 2024.

REFEREED CONFERENCES (9 total)

- Ahn J, Ashkani-Esfahani S, Winckelmans D, Ebrahimi A, Ranganathan N, **Subasi O**, Masri MA, Guss D, Bejarano-Pineda L, Waryasz G, Kwon J, DiGiovanni C. "Tension Alterations in Posterior Tibialis Tendon Following Medial Displacement Calcaneal Osteotomy plus Flexor Digitorum Longus Transfer: A Cadaveric Study." *Foot & Ankle*

Orthopaedics. 2025;10(4):2473011425S00451. doi: 10.1177/2473011425S00451. *AOFAS Annual Meeting 2025*, Savannah, GA, USA.

- Taseh A, **Subasi O**, Rai C, Karaismailoglu B, Ghandour S, Waryasz G, Ashkani-Esfahani S, Landsman A. "Evaluating the Effectiveness of Arch Supports for Plantar Fasciitis: Insights from Patient-Reported Outcomes, Advanced Imaging, and Finite Element Analysis." *Foot & Ankle Orthopaedics*. 2025;10(4):2473011425S00242. doi: 10.1177/2473011425S00242. *AOFAS Annual Meeting 2025*, Savannah, GA, USA.
- **Subasi O**, Tung WS, Hollander J, et al. "Creation of a Custom 3D Algorithm for Proper Alignment of Straight Nails in Tibiototalcaneal Arthrodesis." *Foot & Ankle Orthopaedics*. 2024;9(4). doi:10.1177/2473011424S00226. *AOFAS Annual Meeting 2024*, Vancouver, Canada.
- Aslan L, **Subasi O**, Karaismailoglu B, et al. "In Silico Assessment of the Influence of Talus Osteochondral Lesion Size and Location on Ankle Joint Stability using Tilted Talar Dome Plane Orientations." *Foot & Ankle Orthopaedics*. 2024;9(4). doi:10.1177/2473011424S00325. *AOFAS Annual Meeting 2024*, Vancouver, Canada.
- **Subasi O**, Sharma S, Karaismailoglu B, Ashkani-Esfahani S, Bejarano-Pineda L. "Chevron vs Oblique Medial Displacement Calcaneal Osteotomy - Which Is More Stable? Results From a Finite Element Analysis Study." *Foot & Ankle Orthopaedics*. 2023;8(4). doi:10.1177/2473011423S00255. *AOFAS Annual Meeting 2023*, Louisville, KY, USA.
- Aslan L, **Subasi O**, Gedik CC, Yuruk B, Birsal O, Eren I. "In Silico Investigation of Talus Osteochondral Defect Size on Ankle Stability. Does Microfracture Threshold Differ According to Localization?" *24th EFORT Annual Congress*, Vienna, Austria, May 2023.
- Aslan L, **Subasi O**, Gedik CC, Birsal O, Demirhan M, Eren I. "In Silico Analysis of Rib Force Distribution in Post Scapulothoracic Fusion Model" *24th EFORT Annual Congress*, Vienna, Austria, May 2023.
- Hussain A, Layegh SEK, Lazoglu I, **Subasi O**, Yigit IE, Öztürk C, Yavaş Ç "Free-form Ball-end Milling of 48-2-2 Gamma Titanium Aluminide" in *10th International Symposium on Machining (UTIS 2019)*. Antalya, Turkey, November 2019.
- Yazgi SG, **Subasi O**, "Development of a Novel Mini Dynamometer: DynoMARC" in *8th International Symposium on Machining (UTIS 2017)*. Antalya, Turkey, November 2017.

GBD Collaborative Consortium Studies (5 listed, 9 total)

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- Sirota SB, Bender RG, ..., **Subasi O**, et al. "Global burden of lower respiratory infections and aetiologies, 1990-2023: a systematic analysis for the Global Burden of Disease Study 2023", *Lancet Infectious Diseases*. DOI: 10.1016/S1473-3099(25)00689-9. Vol. 26(4), pp. 343-361. 2026.
 - Hay SI, Ong KL, ..., **Subasi O**, et al. "Burden of 375 diseases and injuries, risk-attributable burden of 88 risk factors, and healthy life expectancy in 204 countries and territories, including 660 subnational locations, 1990–2023: a systematic analysis for the Global Burden of Disease Study 2023", *Lancet*. DOI: 10.1016/S0140-6736(25)01637-X. Vol 406(10513), pp. 1873-1922. 2025.
 - Naghavi M, Kyu HH, ..., **Subasi O**, et al. "Global burden of 292 causes of death in 204 countries and territories and 660 subnational locations, 1990-2023: a systematic analysis for the Global Burden of Disease Study 2023", *Lancet*. DOI: 10.1016/S0140-6736(25)01917-8. Vol 406(10513), pp. 1811-1872. 2025.
 - Schumacher AE, Zheng P, ..., **Subasi O**, et al. "Global age-sex-specific all-cause mortality and life expectancy estimates for 204 countries and territories and 660 subnational locations, 1950-2023: a demographic analysis for the Global Burden of Disease Study 2023", *Lancet*. DOI: 10.1016/S0140-6736(25)01330-3. Vol 406(10513), pp. 1731-1810. 2025.
 - Haeuser E, Byrne S, ..., **Subasi O**, et al. "Global, regional, and national trends in routine childhood vaccination coverage from 1980 to 2023 with forecasts to 2030: a systematic analysis for the Global Burden of Disease Study 2023", *Lancet*. DOI:10.1016/S0140-6736(25)01037-2. Vol 406(10500), pp. 235-260. 2025.

PATENTS

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- Lazoglu I, Yazgi SG, **Subasi O**, "Monolithic flexure based, triaxial dynamometer using photointerrupters". US11169036B2, WO2019103700A1, EP3713721A1, Publication date: 2020/11/19.
 - Kerpici H, Lazoglu I, Oral A, Torabnia S, **Subasi O**. "A compressor comprising a vibration damping member". EP420222B1.

RESEARCH GRANTS

-
- **Industry Grant: Co-Investigator, #IIRR-01880** 2024
Foot and Ankle Research and Innovation Laboratory (FARIL), HMS & MGH, Boston, MA, United States
 - *Funding Organization:* ARTHREX Inc.
 - *Amount Awarded:* \$75,000
 - *Title:* “The effect of talus osteochondral lesion’s location and size to the joint ankle stability and load distribution on cartilage: Finite element analysis and cadaveric validation”
 - **Industry Grant: Co-Investigator** 2024
Foot and Ankle Research and Innovation Laboratory (FARIL), HMS & MGH, Boston, MA, United States
 - *Funding Organization:* FORMLABS Inc.
 - *Amount Awarded:* \$90,000
 - *Title:* “Patient-Specific 3D Printed Instruments in Orthopaedic Surgery”

AWARDS

-
- **TEKNOFEST 1st Place Winner– Artificial Intelligence in Healthcare Competition** 2022
 - My CNN-based computer-assist algorithm for femoral fixation surgery project won 1st place among 60+ teams in the Medical Technologies Category at the largest technology competition in Turkey. (Team: YENI DOKU)
 - **Ph.D. Academic Excellence Award**, Koc University, Istanbul, Turkey 2021
 - Given to recognize academically outstanding graduate students, who have made distinguished contributions to research and a positive impact on the intellectual environment of the University.

TEACHING EXPERIENCE

-
- **Lecturer**
Yale University, Mechanical Engineering Department, CT, US
 - MENG 2147 – Intermediate Mechanical Design Spring 26
 - MENG 4991/4992 – Special Projects I, II Spring 26
 - MENG 1005 – Introduction to Mechanical Design Spring 26
 - MENG 2050/5050 – Computer-Aided Engineering Fall 25
 - MENG 2311 – Strength and Deformation of Mechanical Elements Fall 25
 - Carried out ABET accreditation for MENG 2311.
 - **Adjunct Professor**
Northeastern University, Bioengineering Department, MA, US
 - BIOE 3210 – Bioelectricity Spring 25
 - BIOE 4790 – Capstone Design II Fall 24
 - BIOE 4790 – Capstone Design I Summer 24
 - BIOE 5810 – Design of Biomedical Instrumentation Spring 24
 - **Instructor**
Harvard Medical School (HMS)/Massachusetts General Hospital (MGH), MA, US
 - Engineering in Orthopaedics Research Seminar Spring 23, 24
 - **Teaching Assistant**
Koc University, Istanbul, Turkey
 - MECH 206: Dynamics Spring 18,20
 - MECH 203: Introduction to Mechanical Engineering Design Fall 16,17,18,19,20
 - MECH 542: Mechatronics Spring 19
 - MECH 491: Senior Design Projects Spring 17

SERVICE

- **Journal Peer-Review**

2022- Present

- Annals of Biomedical Engineering
- Biomechanics and Modeling in Mechanobiology
- International Journal for Numerical Methods in Biomedical Engineering
- Computational and Structural Biotechnology Journal
- Brazilian Society of Mechanical Sciences and Engineering
- Journal of Orthopaedic Research
- Nature Scientific Reports
- Journal of Bone Oncology
- Journal of the Mechanical Behavior of Biomedical Materials
- BMC Musculoskeletal Disorders
- BMC Oral Health

GUEST LECTURES AND INVITED TALKS

-
- **'Mechanical Design of Orthopedic Devices'**, New Haven, CT November 2025
Yale University, Mechanical Engineering Department
 - **'Development of Patient Specific Orthopaedic Instruments'**, Boston, MA November 2024 & March 2025
Northeastern University, Bioengineering Department
 - **'Design, Analysis, and Manufacturing of Custom Implants'**, Istanbul, Turkey May 2024
Nisantasi University, School of Engineering
 - **MGH Department of Orthopaedics Podcast 'OrthoMind' Episode 1# & #3** December 2023 & July 2024

REFERENCES

-
- **Ismail Lazoglu**, Professor of Mechanical Engineering, Koc University Ph.D. Advisor
 - ilazoglu@ku.edu.tr
 - **Bedri Karaismailoglu**, Associate Professor of Orthopedics, Istanbul University Postdoc Mentor at Harvard Med
 - bedrikio@iuc.edu.tr
 - **Caglar Ozturk**, Assistant Professor of Mechanical Engineering, University of Southampton Research Collaborator
 - c.ozturk@soton.ac.uk
 - **Lercan Aslan**, Associate Professor of Orthopedics and Traumatology, Koc University Research Collaborator
 - leaslan@ku.edu.tr