

CURRICULUM VITAE



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Born : February 8, 1980, Balıkesir, Turkey
Citizenship : Turkish
Position : Associate Professor / Istanbul University
Mechanical Engineering Department

Contact

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Education

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|------------------|---|-------------------|
| B.Sc. | Istanbul University, Department of Mechanical Engineering | 1998-2002 |
| M.Sc. | Istanbul University, Department of Mechanical Engineering | 2002-2005 |
| Visiting Scholar | Human Performance Laboratory, Faculty of Kinesiology University of Calgary, Canada (Supervisor: Dr. Walter Herzog). | Feb – Aug 2008 |
| Ph.D. | Istanbul University, Department of Mechanical Engineering | 2005-2009 |

Professional History

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| Research Assistant | Istanbul University, Department of Mechanical Engineering | Oct 2002 – Dec 2009 |
| Assistant Professor | Istanbul University, Department of Mechanical Engineering | Feb 2010 – Oct 2015 |

Associate Professor Istanbul University, Department of Mechanical Oct 2015 -
Engineering

Research and Training Experiences

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| Visiting Scholar | Human Performance Laboratory, Faculty of Kinesiology University of Calgary, Canada (Supervisor: Dr. Walter Herzog). | Feb – Aug 2008 |
| Certification program | SpineFX Workshop: Research Management Skills for the Biomedical Engineer, University of Leeds, UK (Organizer: Dr. Richard M. Hall). | 12-15 July 2011 |
| Summer School | First European Computational Motor Control Summer School, Montpellier, France (Organizer: Dr. Nicolas Schweighofer, Dr. Denis Mottet). | 15-21 June, 2014 |
| Summer School | Motor Control Summer School-XI, Bled, Slovenia (Organizer: Dr. Mark Latash). | 26-30 June, 2014 |

Main research activities

Musculoskeletal biomechanics.

Dental biomechanics.

Tissue biomechanics.

Computational biomechanics.

Teaching Experiences

- Strength of Materials Istanbul University, Faculty of Fisheries 2011-2014
- Introduction to Robotics Istanbul University, Mechanical Engineering Department 2012-
- Strength of Materials Istanbul University, Mechanical Engineering Department 2012-
- Strength of Materials for Materials Engineers Istanbul University, Department of Metallurgical and Materials Engineering 2012-2014
- Biomechanics Yeni Yüzyıl University, Department of Biomedical Engineering 2012-2014
- Biomechanics Işık University, Department of Biomedical Engineering 2012-
- Computational Biomechanics Işık University, Department of Biomedical Engineering 2004-
- Biomechanics Istanbul University, Mechanical Engineering Department. MSc Course 2014-
- Advanced Biomechanics Istanbul University, Mechanical Engineering Department. MSc Course 2014-
- Biomechanical Analysis in Sport Istanbul University, Faculty of Sport Sciences, PhD Course 2015-

- Applications in Movement Analysis in sport Istanbul University, Faculty of Sport Sciences, PhD Course 2015-
- Tissue Biomechanics Istanbul University, Mechanical Engineering Department. PhD Course 2016-

Supervision

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| Nuray Korkmaz | Ph.D. thesis title: <i>Bimechanical analysis of muscle coordination during dynamic contraction</i> | 2012- |
| Suzan Cansel Gürcan | Ph.D. thesis title: <i>Biomechanical analysis of the spinal region of human body exposed to vibration</i> | 2013- |
| Kemal Sürmen | Ph.D. thesis title: <i>Ankle-foot orthosis design for children with spina bifida disease</i> | 2014- |
| Faruk Öртеş | Ph.D. thesis | 2014- |
| Derya Karabulut | M.Sc. thesis title: <i>Development of a novel membrane fixation system intended to use in oral surgery</i> | 2014- |
| Rahime Yılmaz | M.Sc. thesis | 2015- |
| Seyit Karakoç | M.Sc. thesis | 2015- |
| Songül Kahya | M.Sc. thesis | 2015- |
| Müge Bulat | Ph.D. thesis | 2015- |
| Hasan AYTEPE | Ph.D thesis | 2015- |

Supervisor Committee

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|--------------|--|------------------------------|
| Erol Cansız | PhD, Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Istanbul University | September 2013 - August 2015 |
| Aydan Gürcan | PhD, Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Istanbul University | September 2015 - |

Funding

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| Scholarship for doctorate research | Scientific and Technological Research Council of Turkey (TUBITAK) – 10.000\$ | Feb – Aug 2008 |
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Research Grants

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| Principal investigator- Istanbul University Scientific Research Projects | Design and production of computer assisted, patient specific sagittal split osteotomy guide and soft tissue retractor - 11.000\$ | May 2012- |
| Principal investigator- | Diagnosis of the spinal cord injuries using skin | 2012-2014 |

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| Istanbul University Scientific Research Projects | impedance data - 2500\$ | |
| Principal investigator- Istanbul University Scientific Research Projects | Comparative analysis of the biomechanical models of human bodies exposed to vertical vibrations - 1500\$ | 2013-2014 |
| Principal investigator- Istanbul University Scientific Research Projects | Gait data analysis recorded pre- and post operation of patients subjected to the atropic jaw augmentation - 2.500\$ | September 2014- |
| Principal investigator- Istanbul University Scientific Research Projects | Analysis of the decision making process of the motor control mechanism - 7.000\$ | April 2014- |
| Investigator- TUBITAK | Investigation of motor control mechanisms in the execution of multi joint movements - 70.800\$ | September 2015- |

Editorial Service

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| Editorial Board Member | American Journal of Biomedical Engineering | 2011-2015 |
| Editorial Board Member | Journal of Medicine Research and Development | 2012- |

Refereeing for International Scientific Journals

Acta Biotheoretica
American Journal of Biomedical Engineering
Computer Methods and Programs in Biomedicine
Digital Signal Processing
Journal of Biomechanics
Journal of Low Frequency Noise Vibration and Active Control
Journal of Mechanics in Medicine and Biology
Journal of Medical and Biological Engineering
Journal of Pain Research
Journal of Vibration and Control
Journal of Vibroengineering
Medical & Biological Engineering & Computing
Part C Journal of Mechanical Engineering Science
Turkish Journal of Electrical Engineering & Computer Sciences

Refereeing for Conference Proceedings

Turkish National Meeting on Automatic Control 2013

Refereeing for Granting Institutions

The Scientific and Technological Research Council of Turkey (TUBITAK)

Computer Skills

MATLAB, Opensim

Languages

Turkish (native language), English (KPDS Score: 92).

Interests

Reading, traveling, swimming, politics.

Memberships

The Chamber of Turkish Mechanical Engineers

International Society of Biomechanics

REFERENCES

- **Walter HERZOG, Ph.D.**
Co-Director Human Performance Lab
Professor, Faculty of Kinesiology
Associate Dean Research, Kinesiology
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- **Marcus PANDY, Ph.D.**
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Professor, Department of Mechanical Engineering
Melbourne School of Engineering
The University of Melbourne, Victoria 3010 Australia
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- **Nurkan YAGIZ, Ph.D.**
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Istanbul University

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- **Safak Sahir KARAMEHMETOGLU, M.D.**

Professor
Physical Medicine and Rehabilitation Department
Cerrahpasa Medical Faculty, Istanbul University
34098 Cerrahpasa, Istanbul, TURKEY
Phone : 0 212 414 14 00
Fax : 0 212 652 00 32
Email : karamehm@istanbul.edu.tr

- **Mehmet Arif ADLI, Ph.D.**

Professor, Mechanical Engineering Department
Gazi University Ankara / TURKEY
Phone : +90 312 582 3447
Email : arif.adli@gazi.edu.tr

LIST OF PUBLICATIONS

M.Sc. Thesis

The analysis of joint torques during bi-manual manipulation of two human arms by using EMG signals, Istanbul University, Department of Mechanical Engineering, 2005 (Supervisor: Dr. Nurkan Yagiz, Dr. Mehmet Arif Adli).

Ph.D. Thesis

Mechanics and force optimization analysis of the musculoskeletal system, Istanbul University, Department of Mechanical Engineering, 2009 (Supervisor: Dr. Nurkan Yagiz).

Patents

Patient specific sagittal split osteotomy guide and soft tissue retractor (under review).

Invited Lectures

1. Arslan, Y.Z., Patient-specific design and manufacture of instruments and implants used in maxillofacial surgery, International Workshop On Smart Design & Manufacturing, 2015, Istanbul Technical University, Istanbul, TURKEY.

Book Chapters

1. **Arslan, Y.Z.**, Hacıoglu, Y., Taskin, Y., Yagiz, N., 2015, Control of a Biomimetic Robot Hand Finger: Classical, Robust and Intelligent Approaches, 475-499, Ed: Habib, M.K., Handbook of Research on Advancements in Robotics and Mechatronics (2 Volumes), Hershey, PA, IGI Global Publisher. doi:10.4018/978-1-4666-7387-8.

Papers in Peer Review Journals indexed by SCI&SCI-E

1. Yagiz, N., **Arslan, Y.Z.**, Hacıoglu, Y., 2007, Sliding mode control of a finger for a prosthetic hand, *Journal of Vibration and Control*, 13(6), 733-749.
2. **Arslan, Y.Z.**, Yagiz, N., Hacıoglu Y., 2008, Prosthetic hand finger control using fuzzy sliding modes, *Journal of Intelligent and Robotic Systems*, 52(1), 121-138.

3. Hacıoglu, Y., **Arslan, Y.Z.**, Yagiz, N., 2008, PI+PD type fuzzy logic controlled dual-arm robot in load transfer, *Strojnicki Vestnik - Journal of Mechanical Engineering*, 54(5), 347-355.
4. **Arslan, Y.Z.**, Hacıoglu, Y., Yagiz, N., 2009, Fuzzy sliding mode control of a humanoid robot hand finger, *Expert Systems*, 26(3), 291-303.
5. Karamehmetoglu, S.S., Ugur, M., **Arslan, Y.Z.**, Palamar, D., 2009, A quantitative skin impedance test to diagnose spinal cord injury, *European Spine Journal*, 18(7), 972-977.
6. **Arslan, Y.Z.**, Adli, M.A., Akan, A., Baslo, M.B., 2010, Prediction of externally applied forces to human hands using frequency content of surface EMG signals, *Computer Methods and Programs in Biomedicine*, 98(1), 36-44.
7. Yagiz, N., Hacıoglu, Y., **Arslan, Y.Z.**, 2010, Load transportation by dual arm robot using sliding mode control, *Journal of Mechanical Science and Technology*, 24(5), 1177-1184.
8. Hacıoglu, Y., **Arslan, Y.Z.**, Yagiz, N., 2011, MIMO fuzzy sliding mode controlled dual arm robot in load transportation, *Journal of the Franklin Institute*, 348(8), 1886-1902.
9. **Arslan, Y.Z.**, Demirer, R.M., Palamar, D., Ugur, M., Karamehmetoglu, S.S., 2012, Comparison of the data classification approaches to diagnose spinal cord injury, *Computational and Mathematical Methods in Medicine*, 2012, Article ID 803980, 7 pages.
10. Sezgin, A., **Arslan, Y.Z.**, 2012, Analysis of the vertical vibration effects on ride comfort of vehicle driver, *Journal of Vibroengineering*, 14(2), 559-571.
11. **Arslan, Y.Z.**, Jinha, A., Kaya, M., Herzog, W., 2013, Prediction of muscle forces using static optimization for different contractile conditions, *Journal of Mechanics in Medicine and Biology*, 13(3), 1-13, 2013.

12. Cansiz, E., **Arslan, Y.Z.**, Turan, F., Atalay, B., 2014, Computer-assisted design of patient-specific sagittal split osteotomy guide and soft tissue retractor, *Journal Medical and Biological Engineering*, 34(4): 363-367.
13. **Arslan, Y.Z.**, Sezgin, A., Yagiz, N., 2015, Improving the ride comfort of vehicle passenger using fuzzy sliding mode controller, *Journal of Vibration and Control*, 21(9), 1667–1679.
14. **Arslan, Y.Z.**, 2015, Experimental assessment of lumped-parameter human body models exposed to whole body vibration, *Journal of Mechanics in Medicine and Biology*, 15(3), 1550023-1-13.
15. Cansiz, E., Dogru, S.C., **Arslan, Y.Z.**, 2015, Comparative evaluation of the mechanical properties of resorbable and titanium miniplates used for fixation of mandibular condyle fractures, *Journal of Mechanics in Medicine and Biology*, 15(2), 1540032-1-8.

Papers in Peer Review Journals indexed by other than SCI&SCI-E

1. **Arslan, Y.Z.**, Gundogdu, U., Sayin A., Akan, A., Orhan E. K. and Baslo M. B., 2006, Interpretation of muscle fatigue using temporal and spectral moments of EMG signals, *WSEAS Transactions on Signal Processing*, 5(2), 656-661.

Refereed Conference Proceedings

1. **Arslan, Y.Z.**, Akan, A., Adli, M.A., Estimation of the human arm tip forces by using EMG signals, *Proceedings of the 3rd European Medical and Biological Engineering Conference*, Prague, Czech Republic, November 20-25, 2005, Vol 11.
2. **Arslan, Y.Z.**, Adli, M.A., Akan, A., Investigation of the relationship between EMG signals and the forces applied to human arms, *Proceedings of the 4th International Conference on Electrical and Electronics Engineering*, Bursa, Turkey, December 7-11, 2005, 199-203.

3. Gundogdu, U., Sayin A., Akan, A., **Arslan, Y.Z.**, Orhan E.K., Baslo M.B., Investigation of muscle fatigue using temporal and spectral moments, Proceedings of the 5th WSEAS International Conference on Signal Processing, Istanbul, Turkey, May 27-29, 2006, 10-14.
4. **Arslan, Y.Z.**, Hacioglu, Y., Modeling and control of a humanoid robot hand finger, Proceedings of the 5th International Symposium on Intelligent Manufacturing Systems, Sakarya, Turkey, May 29-31, 2006, 1141-1149.
5. Yagiz, N., Hacioglu, Y., **Arslan, Y.Z.**, Robust control of a prosthetic hand finger, Proceedings of the 5th European Symposium on Biomedical Engineering, Patras, Greece, July 7-9, 2006.
6. **Arslan, Y.Z.**, Tunç M., Orhan E.K., Baslo M.B., Observations on the characteristics of EMG signals recorded at different depths, Proceedings of the 5th European Symposium on Biomedical Engineering, Patras, Greece, July 7-9, 2006.
7. Hacioglu, Y., **Arslan, Y.Z.**, Akan, A., Yagiz, N., PI-type fuzzy logic control of a dual arm robot, Proceedings of the 9th WSEAS International Conference on Automatic Control, Modeling & Simulation, Istanbul, Turkey, May 27-29, 2007, 42-45.
8. Yagiz, N., Hacioglu, Y., **Arslan, Y.Z.**, Simultaneous trajectory manipulation of a dual-arm robot using sliding mode control, Proceedings of the 12th International Conference on Aerospace Sciences & Aviation Technology, Cairo, Egypt, May 29-31, 2007, ROB 1-12.
9. **Arslan, Y.Z.**, Ulus, T., Yagiz, N., Assessment of force prediction performances of the phenomenological musculotendinous unit models, 15th Scientific Convention on Engineering and Architecture – 6th Cuban Congress of Mechanic Engineering and Metallurgic Engineering, Havana, Cuba, November 29 – December 3, 2010.

10. **Arslan, Y.Z.**, Palamar, D., Karamehmetoglu, S.S., Ugur, M., Can we determine the level of spinal cord injury in a quantitative manner?, International Society of Biomechanics Congress, Brussels, Belgium, July 3-7, 2011.
11. **Arslan, Y.Z.**, Kaya, K., Herzog, W., Evaluation of muscle force predictions using optimization theory, International Conference on Mathematical Modeling in Physical Sciences, Budapest, Hungary, September 3-7, 2012.
12. **Arslan, Y.Z.**, Kaya, M., Jinha, A., Herzog, A., Static optimization solution to the force sharing problem, XXIV Congress of the International Society of Biomechanics, Natal, Brazil, August 4-9, 2013.
13. **Arslan, Y.Z.**, Turan, F., Cansiz, E., Design and manufacture of a patient-specific surgical device for sagittal split osteotomy, 7th World Congress of Biomechanics, Boston, USA, July 6-11, 2014.
14. Cansiz, E., Dogru, S.C., **Arslan, Y.Z.**, Evaluation of different fixation materials for mandibular condyle fractures, XIX International Conference on Mechanics in Medicine and Biology, Bologna, Italy, September 3-5, 2014.
15. **Arslan, Y.Z.**, Cansiz, E., Turan, F., Application of a maxillofacial surgery instrument manufactured by laser sintering in the sagittal split osteotomy, 8th International Symposium on Mechanics of Materials and Structures, 5-8, Augustow, Poland, May 31-June 3, 2015.
16. Karabulut, D., Dogru, S.C., Cansiz, E., **Arslan, Y.Z.**, Akalan, N.E., Evaluation of gait characteristics of patient subjected to the atrophic jaw augmentation, 2nd International Conference on Electrical, Computer, Mechanical and Mechatronics Engineering, Istanbul, Turkey, 27-28 August 2015.

Abstracts in Refereed Conference Proceedings

1. Karamehmetoğlu, Ş.S, Ugur, M., **Arslan, Y.Z.**, Palamar, D., The determination of the level of spinal cord injury according to the measurement of skin resistance, 46th

International Spinal Cord Society Annual Scientific Meeting, Reykjavik, Iceland, June 27 - July 1, 2007, p110.

2. Cansız, E., **Arslan, Y.Z.**, Turan, F., Atalay, B., Design and production of a novel computer assisted, patient specific sagittal split osteotomy guide and soft tissue retractor, 7th International ACBID Congress, Antalya, Turkey, 29 May- 2 June 2013.

Refereed National Conference Proceedings

1. **Arslan Y. Z.**, Kinematic and dynamic analysis of a human hand model, National Machine Theory Symposium, Ankara, September 4-6, 2003, 29- 33 (in Turkish).
2. **Arslan Y. Z.**, Akan A., Adlı. M.A, Uğur M., Baslo B., Analysis of forces applied to human hand using EMG signals, 2nd National Biomechanics Conference, Istanbul, November 26-27, 2004, 113-121 (in Turkish).
3. **Arslan Y. Z.**, Akan A., Baslo M. B., Estimation of the forces applied to human hand by EMG signals, Signal Processing and Applications Symposium, Kayseri, May16-18, 2005 (in Turkish).
4. **Arslan Y. Z.**, Gündoğdu U., Sayın., Akan A., Orhan E.K., Baslo M.B., Evaluation of the fatigue in human arms via electromyography signals, Signal Processing and Applications Symposium, Antalya, April 17-19, 2006 (in Turkish).
5. **Arslan Y.Z.**, Schappacher G., Jinha A., Herzog W., Prediction of individual muscle forces using static non-linear optimization, 4th National Biomechanics Conference, October 16-17 2008, Erzurum, Turkey 214-220 (in Turkish).
6. Sezgin A., **Arslan Y.Z.**, Yagiz N., Decreasing the effect of road induced vibrations on human body by sliding mode controller, 16th National Machine Theory Symposium, September 11-12 2013, Erzurum, Turkey, 34-41 (in Turkish).

7. **Arslan, Y.Z.**, Turan, F., Cansiz, E., Design and manufacture of the sagittal split osteotomy guide and soft tissue retractor, Internationally Participated 7th National Biomechanics Congress, October 16-18, Isparta, Turkey, (in Turkish).
8. 8. Ortes, F., Karabulut, D., Arslan, Y.Z., Comparative evaluation of the EMG signal features for myoelectric controlled human arm prosthetics, BIYOMUT, November 6-7 2015, Istanbul, Turkey, (in Turkish).
9. 9. Cansiz, E., Dogru, S.C., Arslan, Y.Z., Mechanical evaluation of different fixation materials used for mandibular condyle fractures: finite element analysis, BIYOMUT, November 6-7 2015, Istanbul, Turkey, (in Turkish), (**BEST PAPER AWARD**).
10. 10. Karabulut, D., Doğru, S.C., Arslan, Y.Z., Lin, Y.C., Pandey, M., Herzog, W., Development and validation of a musculoskeletal model of the cat hind limb, BIYOMUT, November 6-7 2015, Istanbul, Turkey, (in Turkish).