

## **Asst. Prof. SELÇUK HİMMETOĞLU**

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### **International Researcher IDs**

ORCID: 0000-0002-8635-703X

Publons / Web Of Science ResearcherID: N-9273-2018

Yoksis Researcher ID: 182844

### **Education Information**

Doctorate, Loughborough University, Mühendislik Fakültesi, Makina Ve İmalat Mühendisliği, United Kingdom 2003 - 2008

Postgraduate, Middle East Technical University, Faculty Of Engineering, Makina Mühendisliği, Turkey 1996 - 2000

Undergraduate, Middle East Technical University, Faculty Of Engineering, Makina Mühendisliği, Turkey 1992 - 1996

### **Foreign Languages**

English, C1 Advanced

### **Research Areas**

Mechanical Engineering, Machine Theory and Dynamics, Modeling and Simulation of Dynamic Systems, Engineering and Technology

### **Academic Titles / Tasks**

Assistant Professor, Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 2009 - Continues

### **Advising Theses**

Himmetoğlu S., Dynamic characterisation of human neck for impact applications, Postgraduate, B.EMRE(Student), 2023

Himmetoğlu S., ADAPTIVE CAR SEAT CONTROL FOR WHIPLASH MITIGATION, Doctorate, A.GÜNEŞ(Student), 2022

Himmetoğlu S., A DUMMY HEAD AND NECK MODEL FOR BOTH FRONTAL AND REAR IMPACTS, Postgraduate, Y.DEMİRER(Student), 2022

Himmetoğlu S., AN INVESTIGATION OF COMPATIBILITY FOR THE PASSENGER CAR FLEET IN HEAD-ON FRONTAL COLLISIONS, Postgraduate, G.ŞAHİN(Student), 2022

Himmetoğlu S., Development of a metric system to evaluate the performance of passenger cars in frontal crash tests, Postgraduate, E.KAMIŞLI(Student), 2021

## **Published journal articles indexed by SCI, SSCI, and AHCI**

- I. **Development of a Restraint System for Rear-Facing Car Seats**  
Yavuz S., Himmetoğlu S.  
Machines, vol.11, no.12, pp.1-30, 2023 (SCI-Expanded)
- II. **Car seat design to improve rear-impact protection**  
HİMMETOĞLU S., Acar M., Bouazza-Marouf K., Taylor A. J.  
PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART D-JOURNAL OF AUTOMOBILE ENGINEERING, vol.225, pp.441-459, 2011 (SCI-Expanded)
- III. **A multi-body human model for rear-impact simulation**  
HİMMETOĞLU S., Acar M., Bouazza-Marouf K., Taylor A.  
PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART D-JOURNAL OF AUTOMOBILE ENGINEERING, vol.223, pp.623-638, 2009 (SCI-Expanded)
- IV. **Energy-Absorbing Car Seat Designs for Reducing Whiplash**  
HİMMETOĞLU S., Acar M., Bouazza-Marouf K., Taylor A. J.  
TRAFFIC INJURY PREVENTION, vol.9, no.6, pp.583-591, 2008 (SCI-Expanded)
- V. **A multi-body head-and-neck model for simulation of rear impact in cars**  
HİMMETOĞLU S., Acar M., Taylor A. J., Bouazza-Marouf K.  
PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART D-JOURNAL OF AUTOMOBILE ENGINEERING, vol.221, pp.527-541, 2007 (SCI-Expanded)

## **Refereed Congress / Symposium Publications in Proceedings**

- I. **Inverse kinematics analysis of a 2-DOF spherical parallel manipulator**  
Himmetoğlu S.  
21. Ulusal Makina Teorisi Sempozyumu (UMTS 2023), Edirne, Turkey, 13 - 15 September 2023, pp.238-245
- II. **A Survey Study of Autonomous Vehicle Moral Dilemma: A Turkish Perspective**  
HİMMETOĞLU S., ZENGİN E., Orkmez F., Tekeli A.  
27th International Scientific Conference on Transport Means 2023, Hybrid, Palanga, Lithuania, 4 - 06 October 2023, vol.1, pp.214-219
- III. **An Evaluation of Front and Rear Seat Safety: Improvements and Critical Points**  
HİMMETOĞLU S.  
27th International Scientific Conference on Transport Means 2023, Hybrid, Palanga, Lithuania, 4 - 06 October 2023, vol.1, pp.62-67
- IV. **Estimation of Occupant Compartment Intrusion in Full-Width Rigid Barrier Impacts**  
HİMMETOĞLU S.  
27th International Scientific Conference on Transport Means 2023, Hybrid, Palanga, Lithuania, 4 - 06 October 2023, vol.1, pp.13-18
- V. **The Effect of Seatback Angle on Whiplash Risk in Rear-end Collisions**  
HİMMETOĞLU S.  
27th International Scientific Conference on Transport Means 2023, Hybrid, Palanga, Lithuania, 4 - 06 October 2023, vol.1, pp.266-270
- VI. **Introduction of a Car Seat with Robust Performance against Whiplash in Rear Impacts**  
HİMMETOĞLU S.  
27th International Scientific Conference on Transport Means 2023, Hybrid, Palanga, Lithuania, 4 - 06 October 2023, vol.1, pp.110-115
- VII. **Integration of muscle tone into a multi-body head-and-neck model for crash applications**

Himmetoğlu S.

26th International Scientific Conference Transport Means 2022, Kaunas, Lithuania, 5 - 07 October 2022, pp.27-32

- VIII. **Acceptance of autonomous vehicles in Turkey**  
Himmetoğlu S., Zengin E. N., Özkök O., Kara B. S.  
26th International Scientific Conference Transport Means 2022, 05 October 2022, pp.134-139
- IX. **Development of a mathematical tool to measure crash severity in frontal impacts**  
Himmetoğlu S., Dugan G.  
26th International Scientific Conference Transport Means 2022, Kaunas, Lithuania, 5 - 07 October 2022, pp.254-259
- X. **Introduction of a protection system for rear-facing seats in autonomous car crashes**  
Himmetoğlu S.  
26th International Scientific Conference Transport Means 2022, Kaunas, Lithuania, 5 - 07 October 2022, pp.104-109
- XI. **Occupant protection in seats with fixed recliners in rear-end collisions**  
Himmetoğlu S.  
19th International Conference on Machine Design and Production (UMTIK 2022), Nevşehir, Turkey, 31 August - 03 September 2022, pp.97-109
- XII. **A dynamic characterisation of full-overlap low-speed rear impacts**  
Himmetoğlu S., Beyhan C., Zengin E. N.  
19th International Conference on Machine Design and Production (UMTIK 2022), Nevşehir, Turkey, 31 August - 03 September 2022, pp.41-52
- XIII. **Female Modelling and Protection in Road-Traffic Accidents**  
Himmetoğlu S., Şen F., Özer F. T.  
26th International Scientific Conference Transport Means 2022, Kaunas, Virtual, Lithuania, 5 - 07 October 2022, vol.2022-October, pp.308-313
- XIV. **Validation of a Multi-Body Human Model for Efficient Rear Impact Simulations**  
HİMMETOĞLU S.  
25th International Scientific Conference Transport Means 2021, Kaunas, Virtual, Lithuania, 6 - 08 October 2021, vol.2021-October, pp.35-40
- XV. **An Analysis of Head-on Frontal Collisions by Modelling Crash Tests**  
HİMMETOĞLU S.  
25th International Scientific Conference Transport Means 2021, Kaunas, Virtual, Lithuania, 6 - 08 October 2021, vol.2021-October, pp.86-91
- XVI. **Vehicle structure related design criteria and restraint performance for vans in full-width frontal impacts**  
HİMMETOĞLU S., Yildirim U., Ozturk T.  
24th International Scientific Conference on Transport Means 2020, Kaunas, Lithuania, 30 September - 02 October 2020, pp.16-21
- XVII. **Neck protection in autonomous car crashes**  
Yavuz S., HİMMETOĞLU S.  
24th International Scientific Conference on Transport Means 2020, Kaunas, Lithuania, 30 September - 02 October 2020, pp.147-152
- XVIII. **Validation of a simple multi-body head-and-neck model for efficient rear impact simulations**  
HİMMETOĞLU S., Balci T., Aydogan M.  
24th International Scientific Conference on Transport Means 2020, Kaunas, Lithuania, 30 September - 02 October 2020, pp.273-277
- XIX. **Safety issues in fully autonomous cars: A Turkish perspective**  
Himmetoğlu S., Kılıç L. O.  
23rd International Scientific Conference on Transport Means 2019, Palanga, Lithuania, 2 - 04 October 2019, pp.131-134
- XX. **Design criteria for the safety of passenger cars in frontal impacts**

Himmetoğlu S., Ünal H., Sak Y. G.

23rd International Scientific Conference on Transport Means 2019, Palanga, Lithuania, 2 - 04 October 2019, pp.1496-1503

- XXI. **Derivation of stiffnesses for comparison of vehicle performance in frontal impacts**  
HİMMETOĞLU S.  
18th International Conference on Machine Design and Production - UMTIK 2018, Eskişehir, Turkey, 3 - 06 July 2018, pp.61-79
- XXII. **The effects of load cell wall design in the assessment of shape compatibility in vehicle collisions**  
HİMMETOĞLU S.  
22nd International Scientific on Conference Transport Means 2018, Trakai, Lithuania, 3 - 05 October 2018, pp.84-91
- XXIII. **Derivation of crush force versus deformation behaviour of vehicles at different impact speeds**  
HİMMETOĞLU S., YILMAZ K. B., YILDIRIM B., TEKİN a.  
22nd International Scientific on Conference Transport Means 2018, Trakai, Lithuania, 3 - 05 October 2018, pp.49-56
- XXIV. **Verification of Poisson hypothesis in vehicle crashes using a semi-analytical method (Taşıt çarpışmalarında Poisson hipotezinin yarı-analitik yöntemle doğrulanması)**  
Himmetoğlu S.  
18. Ulusal Makina Teorisi Sempozyumu (UMTS 2017), Trabzon, Turkey, 5 - 07 July 2017
- XXV. **Passive-seat design to reduce whiplash in rear impacts**  
HİMMETOĞLU S.  
3rd International Conference on Engineering and Natural Science (ICENS 2017), Budapest, Hungary, 3 - 07 May 2017
- XXVI. **An adaptive car-seat to mitigate whiplash in rear impacts**  
HİMMETOĞLU S.  
21st International Scientific on Conference Transport Means 2017, Juodkrante, Lithuania, 20 - 22 September 2017, pp.32-38
- XXVII. **An analysis of load incompatibility in central in-line collisions of vehicles using lumped-mass modelling**  
HİMMETOĞLU S.  
17th International Conference on Machine Design and Production (UMTIK 2016), Bursa, Turkey, 12 - 15 July 2016
- XXVIII. **An evaluation of passive head-restraints with different stiffness and energy dissipation properties for whiplash mitigation**  
HİMMETOĞLU S.  
7th International Expert Symposium on Accident Research (ESAR 2016), Hannover, Germany, 9 - 10 June 2016
- XXIX. **Rear impact whiplash test design by using a Maxwell-element based energy-absorber**  
HİMMETOĞLU S.  
2nd International Conference on Engineering and Natural Science (ICENS 2016), Sarajevo, Bosnia And Herzegovina, 24 - 28 May 2016
- XXX. **Crash-adaptive seat-and-head-restraint systems for rear-impact whiplash mitigation**  
Himmetoğlu S., Acar M.  
International Crashworthiness Conference (ICRASH 2010), Washington, United States Of America, 22 - 24 September 2010
- XXXI. **The influence of crash pulse shape on seat-occupant response in rear impacts**  
HİMMETOĞLU S.  
4th International Expert Symposium on Accident Research (ESAR), Hannover, Germany, 16 - 18 September 2010
- XXXII. **Design and manufacturing of a whiplash-mitigating car-seat demonstrator**  
HİMMETOĞLU S., Acar M.  
14th International Conference on Machine Design and Production (UMTIK 2010, Güzelyurt, Cyprus (Kktc), 29 June - 02 July 2010
- XXXIII. **WHIPLASH PROTECTION BY ENERGY ABSORBING CAR-SEAT CONCEPTS**

HİMMETOĞLU S., Acar M., Bouazza-Marouf K., Taylor A. J.

10th ASME Biennial Conference on Engineering Systems Design and Analysis, İstanbul, Turkey, 12 - 24 July 2010, pp.311-320

**XXXIV. Reactive seat design for optimum whiplash mitigation at different crash severities**

Himmetoğlu S., Acar M., Bouazza Marouf K., Taylor A. J.

International IRCOBI Conference 2009, York, United Kingdom, 9 - 11 September 2009

**XXXV. Car seat design methodology for rear impact protection**

HİMMETOĞLU S., Acar M., Bouazza Marouf K., Taylor A. J.

13th International Conference on Machine Design and Production (UMTIK 2008), İstanbul, Turkey, 3 - 05 September 2008

**XXXVI. Investigation of different strategies for car seat design to reduce whiplash injuries**

HİMMETOĞLU S., Acar M., Taylor A. J., Bouazza Marouf K.

International Conference on Neck injuries in road traffic and prevention strategies, Munich, Germany, 5 - 06 November 2007

**XXXVII. A multi-body head and neck model for low speed rear impact analysis**

HİMMETOĞLU S., Acar M., Taylor A. J., Bouazza Marouf K.

IFTOMM 12th World Congress in Mechanism and Machine Science, Besançon, France, 17 - 21 June 2007

**XXXVIII. Rear impact human body and car seat models for whiplash injury mitigation**

HİMMETOĞLU S., Acar M., Taylor A. J., Bouazza Marouf K.

3rd Annual Injury Biomechanics Symposium - The Ohio State University, Columbus, United States Of America, 21 - 22 May 2007

**XXXIX. Removing force indeterminacy in a Hooke joint mechanism by increasing and modifying its joints without causing singularities**

HİMMETOĞLU S., Özgören M. K.

IFTOMM 11th World Congress in Mechanism and Machine Science, Tianjin, China, 1 - 04 April 2004

**XL. Force analysis of the Hooke joint**

HİMMETOĞLU S., Özgören M. K.

6th Biennial ASME Conference on Engineering Systems Design and Analysis (ESDA 2002), İstanbul, Turkey, 8 - 11 July 2002

**XLI. Force analysis in manipulators having planar modules**

HİMMETOĞLU S., Özgören M. K.

9th International Conference on Machine Design and Production (UMTIK 2000, Ankara, Turkey, 13 - 15 September 2000

## Supported Projects

HİMMETOĞLU S., Project Supported by Higher Education Institutions, Boyun travmasını azaltmak için çeşitli sertlik ve enerji kaybı özelliklerine sahip pasif koltuk-başlıklarının değerlendirilmesi, 2016 - 2016

## Student Project

R & D Project, Design and manufacturing of a foam impact test machine, Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey, 2022 - Continues

Other, Design, manufacturing and control of a five bar planar parallel robot, Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey, 2023 - 2023

R & D Project, Design, manufacturing and control of a pro-active head-restraint system for rear seats, Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey, 2022 - 2023

Other, Design, manufacturing and control of a 3UPS-1S spatial parallel manipulator, Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey, 2022 - 2023

R & D Project, Design, manufacturing and control of a Delta robot, Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey, 2022 - 2023

R & D Project, Design, manufacturing and control of a two degree-of-freedom robotic eye, Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey, 2022 - 2023

Other, Design, manufacturing and control of a Puma type robot, Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey, 2022 - 2023

Other, Design and application of a rear-impact avoidance sensor system for cars, Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey, 2022 - 2022

R & D Project, Design and manufacturing of an integrated child seat, Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey, 2022 - 2022

Infrastructure Project, Design and manufacturing of a five degree-of-freedom portable CMM (coordinate measuring machine), Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey, 2021 - 2022

Other, Design, manufacturing and control of a Scara robot, Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey, 2021 - 2022

Other, Design, manufacturing and control of a rotatable seat for autonomous vehicles, Hacettepe University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey, 2020 - 2021

## **Metrics**

Publication: 46

Citation (WoS): 38

Citation (Scopus): 82

H-Index (WoS): 4

H-Index (Scopus): 4

## **Invited Talks**

Recent Developments in Vehicle Restraint System Design in the Era of Autonomous Driving, Conference, Diğer Kurumlar, Lithuania, September 2020