Ozan Tokatli | PhD

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Education

Sabanci University — **Istanbul, Turkey**
PhD, Mechatronics Engineering — *2010–2015*
Thesis: Fractional order control in haptics

Sabanci University — **Istanbul, Turkey**
MSc, Mechatronics Engineering — *2008–2010*
Thesis: A novel approach to micro-telemanipulation with soft slave robots: Integrated design of a non-overshooting series elastic actuator

Sabanci University — **Istanbul, Turkey**
BSc, Mechatronics Engineering — *2004–2008*

Research Interests

Robotics for extreme environments, teleoperated nuclear decommissioning, safe human robot interaction, data-driven control for human-robot interaction

Experience

Vocational

United Kingdom Atomic Energy Authority — **Culham, UK**
Robotics Research Engineer — *2018–Current*

Oxford University — **Oxford, UK**
Visiting Researcher — *April 2021–October 2021*

University of Reading — **Reading, UK**
Post-doctoral Research Assistant — *2015–2018*

Aselsan Inc — **Ankara, Turkey**
Trainee — *July 2007*

Teaching

Calculus: Teaching Assistant, Sabanci University, Spring 2014

Linear Algebra: Teaching Assistant, Sabanci University, Fall 2013

Introduction to Robotics: Teaching Assistant, Sabanci University, Fall 2012

Ordinary Differential Equations: Teaching Assistant, Sabanci University, Fall 2010

Mechanics: Teaching Assistant, Sabanci University, Spring 2009

Kinematics and Dynamics of Machinery: Teaching Assistant, Sabanci University, Spring 2008

Programme Committees

Eurohaptics 2016: Local arrangement chair of the conference

Haptics in Education: Organiser of the workshop held as part of IEEE World Haptics 2017

fi-re 2019: Organiser of the workshop on physical human-robot interaction

RAIN HRI Workshop 2020: Organiser of the workshop on human-robot interaction and the chair for teleoperation session

TAROS 2022: Organiser of the TAROS conference held in UKAEA

Reviewer

- Transactions on Robotics
- IEEE Transactions on Mechatronics
- Advance Robotics
- Haptic Symposium
- Robotics and Automation Letters
- IEEE Transactions on Haptics
- IEEE World Haptics
- Eurohaptics

Scholarships

Tuition waiver for graduate education: 2010–2015, Sabanci University

Tubitak-BIDEB Scholarship for Graduate Education: 2010–2015, TUBITAK-BIDEB

Tuition waiver for graduate education: 2008–2010, Sabanci University

Tubitak-BIDEB Scholarship for Graduate Education: 2008–2010, TUBITAK-BIDEB

Merit Scholarship for undergraduate education: 2004–2008, Sabanci University

Publications

Google Scholar profile:
`https://scholar.google.co.uk/citations?user=U4NdQacAAAAJ&hl=en`

Journals

[32] E. J. Lopez Pulgarin, **O. Tokatli**, G. Burroughes, and G. Herrmann. "Operator performance analysis in tele-manipulation". In: *Frontiers (under review)* (2022).

[31] A. Altobelli, **O. Tokatli**, G. Burroughes, and R. Skilton. "Optimal Grasping Pose Synthesis in a Constrained Environment". In: *Robotics* 10.1 (2021).

[30] A. Otaran, **O. Tokatli**, and V. Patoglu. "Physical Human-Robot Interaction Using HANDSON-SEA: An Educational Robotic Platform with Series Elastic Actuation". In: *IEEE Transactions on Haptics* 14.4 (2021).

[29] **O. Tokatli**, P. Das, R. Nath, L. Pangione, A. Altobelli, G. Burroughes, E. T. Jonasson, M. F. Turner, and R. Skilton. "Robot-Assisted Glovebox Teleoperation for Nuclear Industry". In: *Robotics* 10.3 (2021).

[28] M. E. Webb, M. Tracey, W. Harwin, **O. Tokatli**, F. Hwang, R. Johnson, N. Barrett, and C. Jones. "Haptic-enabled collaborative learning in virtual reality for schools". In: *Education and Information Technologies* 27.1 (2021).

[27] Y. Aydin, **O. Tokatli**, V. Patoglu, and C. Basdogan. "A Computational Multi-criteria Optimization Approach to Interaction Controller Design for pHRI Systems". In: *Transactions on Robotics* 36.6 (2020).

[26] Y. Aydin, **O. Tokatli**, V. Patoglu, and C. Basdogan. "Stable Physical Human-Robot Interaction Using Fractional Order Admittance Control". In: *IEEE Transactions on Haptics* 11.3 (2018).

[25] **O. Tokatli** and V. Patoglu. "Nonovershooting Force Control of a Series Elastic Actuator". In: *Solid State Phenomenon* 166 (2010).

Conferences

[24] D. Sirintuna, Y. Aydin, O. Caldiran, **O. Tokatli**, V. Patoglu, and C. Basdogan. "A Variable-Fractional Order Admittance Controller for pHRI". In: *The International Conference on Robotics and Automation (ICRA)*. 2020.

[23] M. Webb, M. Tracey, W. Harwin, **O. Tokatli**, F. Hwang, N. Barrett, C. Jones, and R. Johnson. "An Investigation of the Impact of Haptics for Promoting Understanding of Difficult Concepts in Cell Biology". In: *Open Conference on Computers in Education*. 2019.

[22] M. Webb, M. Tracey, W. Harwin, **O. Tokatli**, F. Hwang, R. Johnson, N. Barrett, and C. Jones. "Design Considerations for Haptic-Enabled Virtual Reality Simulation for Interactive Learning of Nanoscale Science in Schools". In: *International Conference on Immersive Learning*. 2019.

[21] A. Otaran, **O. Tokatli**, and V. Patoglu. “HandsOn-Computing: Promoting Algorithmic Thinking Through Haptic Educational Robots”. In: *EuroHaptics*. 2018.

[20] **O. Tokatli**, M. Tracey, F. Hwang, N. Barrett, C. Jones, M. Webb, and W. Harwin. “A Classroom Deployment of a Haptic System for Learning Cell Biology”. In: *EuroHaptics*. 2018.

[19] Y. Aydin, **O. Tokatli**, V. Patoglu, and C. Basdogan. “Fractional Order Admittance Control for Physical Human-Robot Interaction”. In: *IEEE World Haptics*. 2017.

[18] M. Webb, M. Tracey, W. Harwin, **O. Tokatli**, F. Hwang, R. Johnson, N. Barrett, and C. Jones. “The potential for haptic-enabled interaction to support collaborative learning in school biology”. In: *Society for Information Technology and Teacher Education*. 2017.

[17] A. Otaran, **O. Tokatli**, and V. Patoglu. “Hands-On Learning with a Series Elastic Educational Robot”. In: *EuroHaptics*. 2016.

[16] **O. Tokatli** and V. Patoglu. “Generalized Virtual Environment Models for Haptic Rendering”. In: *Symposium on Theory of Machines and Mechanisms(TrISToMM)*. 2015.

[15] **O. Tokatli** and V. Patoglu. “Stability of Haptic Systems with Fractional Order Controllers”. In: *IEEE/RSJ International Conference on Intelligent Robotsand Systems (IROS)*. 2015.

[14] **O. Tokatli** and V. Patoglu. “Using Fractional Order Elements for Haptic Rendering”. In: *International Symposium on Robotics Research (ISRR)*. 2015.

[13] **O. Tokatli** and V. Patoglu. “Design of a Compliant Manipulator for Removing Malign Cancer Tissue Through Hydrodynamic Cavitation”. In: *ECCOMAS Multibody Dynamics*. 2011.

[12] **O. Tokatli** and V. Patoglu. “Series Elastic Actuation for Force Controlled Micro-Manipulation”. In: *IEEE International Conference on Mechatronics*. 2011.

[11] **O. Tokatli** and V. Patoglu. “Nonovershooting Force Control of a Series Elastic Actuator”. In: *IEEE International Conference on Mechatronics*. 2010.

[10] **O. Tokatli** and V. Patoglu. “Optimal Design of a Series Elastic Actuator”. In: *ASME International Design Engineering Technical Conferences and Computers and Information Engineering Conference*. 2010.

[9] **O. Tokatli** and V. Patoglu. “Robust Optimal Design of a Micro Gripper”. In: *The First Joint Conference on Multibody System Dynamics*. 2010.

[8] **O. Tokatli** and V. Patoglu. “Robust Optimal Design of a Micro Series Elastic Actuator”. In: *AzCIFToMM International Symposium of Mechanisms and Machine Science*. 2010.

[7] **O. Tokatli** and V. Patoglu. “Seri Elastik Eyleyicinin Tasarimi ve Denetimi (Design and Control of a Series Elastic Actuator)”. In: *Otomatik Kontrol Ulusal Toplantisi*. 2010.

[6] **O. Tokatli** and V. Patoglu. “Multi-Criteria Optimization of a Compliant Half Pantograph”. In: *ECCOMAS Multibody Dynamics*. 2009.

Thesis

[5] **O. Tokatli**. “Fractional order control in haptics”. PhD thesis. Istanbul, Turkey: Sabanci University, 2010.

[4] **O. Tokatli**. “Robust optimal design and control of a micro series elastic actuator”. MA thesis. Istanbul, Turkey: Sabanci University, 2010.

In progress

[3] E. J. Lopez Pulgarin, **O. Tokatli**, G. Burroughes, and G. Herrmann. “Digital twins for teleoperation of robotic gloveboxes in maintenance tasks”.

[2] **O. Tokatli** and G. Burroughes. “Multicriteria IK: an inverse kinematics algorithm for redundant manipulators”.

[1] **O. Tokatli** and V. Patoglu. “Fractional Order Control in Haptics”.

Membership

IET, IEEE, Turkish Machine Theory Association (member of IFToMM)

Languages

Turkish (native speaker), English (fluent)

Computer skills

Programming languages: Python, Matlab/Simulink, C/C++, Mathematica
Engineering tools: ROS, Unreal Engine, SolidWorks, Autolev, Git, Docker

References

- **Professor William Harwin**
  Biomedical Engineering, University of Reading, UK
  w.s.harwin@reading.ac.uk
  http://www.personal.reading.ac.uk/~shshawin/
- **Professor Volkan Patoglu**
  Mechatronics Engineering, Sabanci University, Turkey
  vpatoglu@sabanciuniv.edu
  http://myweb.sabanciuniv.edu/vpatoglu/
- **Professor Cagatay Basdogan**
  Mechanical Engineering, Koc University, Turkey
  cbasdogan@ku.edu.tr
  http://home.ku.edu.tr/~cbasdogan/