

Curriculum Vitæ

Mehmet Tahir SANDIKKAYA

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Career Highlights

Dr. Mehmet Tahir Sandikkaya received his BS degree in electrical engineering in 2002, his MS and PhD degrees in computer science in 2005 and 2015 from Istanbul Technical University (ITU). He contributed research efforts on several projects at Katholieke Universiteit Leuven (KU Leuven) Technologiecampus Gent in Belgium from 2008 to 2010. He served as a research assistant in ITU from 2002 to 2016. He visited Drakkar Research group during 2018 till 2019 at Grenoble Informatics Laboratory (LIG) of Grenoble Institute of Technology (Grenoble INP) in University of Grenoble-Alpes (UGA) as an invited research fellow. Currently, he holds an Assistant Professorship position in Computer Engineering Department of ITU. His research contributions include publication on computer security and privacy with a focus on authentication and protocol verification. His recent activities include cloud computing and cyber-physical systems (IoT) security, security measurements, and secure protocol design.

Academic Experience

Assistant Professor Istanbul Technical University, 2018–

Visiting Researcher Grenoble Institute of Technology, 2018–2019

Lecturer Istanbul Technical University, 2016–2018

Research & Teaching Assistant Istanbul Technical University, 2010–2016

Researcher Katholieke Universiteit Leuven Technologiecampus Gent, 2008–2010

Research & Teaching Assistant Istanbul Technical University, 2002–2008

Education

Bachelor of Arts Sociology, Anadolu University, 2024

Philosophiæ Doctor Computer Science, Istanbul Technical University, 2015

Master of Science Computer Science, Istanbul Technical University, 2005

Bachelor of Science Electrical Engineering, Istanbul Technical University, 2002

Publications

- [2025] Dilek Yilmazer Demirel and Mehmet Tahir Sandikkaya. Malicious web session detection with ensemble-based methods. In Thomas Bäck, Niki van Stein, Christian Wagner, Jonathan M. Garibaldi, Francesco Marcelloni, H. K. Lam, Marie Cottrell, Faiyaz Doctor, Joaquim Filipe, Kevin Warwick, and Janusz Kacprzyk, editors, *Computational Intelligence. IJCCI 2023*, volume 1196 of *Studies in Computational Intelligence*, pages 133–148, Cham, March 2025. Springer Nature Switzerland. ISBN 978-3-031-85251-0. URL https://doi.org/10.1007/978-3-031-85252-7_8
- [2025] Serra Uysal and Mehmet Tahir Sandikkaya. Obstacles to the widespread use of connected and automated vehicles. *Journal of Ambient Intelligence and Smart Environments*, 17(1):28–43, March 2025. ISSN 1876-1364. URL <https://doi.org/10.3233/AIS-230232>
- [2025] Işıl Çetintav and Mehmet Tahir Sandikkaya. A review of lightweight IoT authentication protocols from the perspective of security requirements, computation, communication, and hardware costs. *IEEE Access*, 13:37703–37723, February 2025. ISSN 2169-3536. URL <https://doi.org/10.1109/ACCESS.2025.3546147>
- [2024] Ayşe Sayın and Mehmet Tahir Sandikkaya. Turkey’s contact tracing infrastructure from security and privacy perspective. *Journal of Polytechnic*, 27(4):1417–1426, December 2024. ISSN 1302-0900. URL <https://doi.org/10.2339/politeknik.1118577>
- [2024] Mustafa Evcil, Zaliha Yüce Tok, and Mehmet Tahir Sandikkaya. Unsupervised attack detection on MIL-STD-1553 bus for avionic platforms. In Gulchohra Mammadova, Telman Aliev, and Kamil Aidazade, editors, *Information Technologies and Their Applications*, volume 2225 of *Communications in Computer and Information Science*, pages 28–43, Cham, October 2024. Second International Conference on Information Technologies and Their Applications, ITTA 2024, Baku, Azerbaijan, 23 Apr. 2024 – 25 Apr. 2024, Springer Nature Switzerland. ISBN 978-3-031-73416-8. URL https://doi.org/10.1007/978-3-031-73417-5_3
- [2024] Kağan Özgün, Ayşe Tosun, and Mehmet Tahir Sandikkaya. A recommender system to detect distributed denial of service attacks with network and transport layer features. In *Proceedings of the 10th International Conference on Information Systems Security and Privacy ICISSP*, volume 1, pages 390–397. Rome, Italy, 26 Feb. 2024 – 28 Feb. 2024, SciTePress, February 2024. ISBN 978-989-758-683-5. URL <https://doi.org/10.5220/0012350100003648>
- [2024] Gizemnur Taşkın and Mehmet Tahir Sandikkaya. Comparison of security frameworks for SMEs. In *2023 14th International Conference on Electrical and Electronics Engineering (ELECO)*, pages 1–5. Bursa, Turkey, 30 Nov. 2023 – 2 Dec. 2023, IEEE, February 2024. ISBN 979-8-3503-6049-3. URL <https://doi.org/10.1109/ELECO60389.2023.10416030>
- [2024] Mehmet Özkaz and Mehmet Tahir Sandikkaya. Finding the relationship between social media ratings and traditional TV rating using data mining methods. In *International Graduate Research Symposium (IGRS’22)*, pages 459–466. Virtual, 1 Jun. 2022 – 3 Jun. 2022, ITU Press, January 2024. ISBN 978-975-561-582-0. URL <https://polen.itu.edu.tr/items/9016a8fb-8ecb-4065-80c8-89bd78957b69>
- [2023] Nazanin Moarref and Mehmet Tahir Sandikkaya. MC-MLDCNN: Multichannel multilayer dilated convolutional neural networks for web attack detection. *Security and Communication Networks*, 2023(1):2415288, December 2023. ISSN 1939-0114. URL <https://doi.org/10.1155/2023/2415288>
- [2023] Sabtain Ahmad, Halit Uyanık, Tolga Ovatman, Mehmet Tahir Sandikkaya, Vincenzo De Maio, Ivona Brandić, and Atakan Aral. Sustainable environmental monitoring via energy and information efficient multi-node placement. *IEEE Internet of Things Journal*, 10(24):22065–22079, December 2023. ISSN 2327-4662. URL <https://doi.org/10.1109/JIOT.2023.3303124>
- [2023a] Dilek Yilmazer Demirel and Mehmet Tahir Sandikkaya. MASD: Malicious web session detection using ml-based classifier. In *Proceedings of the 15th International Joint Conference on Computational Intelligence - NCTA*, pages 487–495. Rome, Italy, 13 Nov. 2023 – 15 Nov. 2023, SciTePress, November 2023a. ISBN 978-989-758-674-3. URL <https://doi.org/10.5220/0012174800003595>
- [2023] Ayşe Sayın and Mehmet Tahir Sandikkaya. A reasoning method to interpret fate of pollutants on a cyber-physical river model. In *2023 8th International Conference on Computer Science and Engineering (UBMK)*, pages 324–329. Burdur, Turkey, 13 Sep. 2023 – 15 Sep. 2023, IEEE, October 2023. ISBN 979-8-3503-4081-5. URL <https://doi.org/10.1109/UBMK59864.2023.10286674>

- [2023b] Dilek Yilmazer Demirel and Mehmet Tahir Sandikkaya. ACUM: An approach to combining unsupervised methods for detecting malicious web sessions. In *2023 8th International Conference on Computer Science and Engineering (UBMK)*, pages 288–293. Burdur, Turkey, 13 Sep. 2023 – 15 Sep. 2023, IEEE, October 2023b. ISBN 979-8-3503-4081-5. URL <https://doi.org/10.1109/UBMK59864.2023.10286727>
- [2023a] Işıl Çetintav and Mehmet Tahir Sandikkaya. A lightweight authentication and management method for internet of things. *Internet of Things*, 23:100842, October 2023a. ISSN 2543-1536. URL <https://doi.org/10.1016/j.iot.2023.100842>
- [2023] Ayşe Sayın, Mostafa Mohammadpourfard, and Mehmet Tahir Sandikkaya. Identifying concept drift with supervised algorithms in smart grids. In *2023 IEEE PES GTD International Conference and Exposition (GTD)*, pages 263–267. Istanbul, Turkey, 22 May 2023 – 25 May 2023, IEEE, September 2023. ISBN 978-1-7281-7025-1. URL <https://doi.org/10.1109/GTD49768.2023.00076>
- [2023c] Dilek Yilmazer Demirel and Mehmet Tahir Sandikkaya. Web based anomaly detection using zero-shot learning with CNN. *IEEE Access*, 11:91511–91525, August 2023c. ISSN 2169-3536. URL <https://doi.org/10.1109/ACCESS.2023.3303845>
- [2023] Eren Kılıç and Mehmet Tahir Sandikkaya. Obfuscated javascript code detection using machine learning with AST-based syntactic and lexical analysis. In *2023 8th International Conference on Smart and Sustainable Technologies (SpliTech)*, pages 1–6. Split/Bol, Croatia, 6 Jun. 2023 – 10 Jun. 2023, IEEE, August 2023. ISBN 978-953-290-128-3. URL <https://doi.org/10.23919/SpliTech58164.2023.10193211>
- [2023b] Işıl Çetintav and Mehmet Tahir Sandikkaya. LAKE: A low-cost, lightweight authentication, key exchange, and data transfer scheme for iot. In *2023 12th Mediterranean Conference on Embedded Computing (MECO)*, pages 1–4. Budva, Montenegro, 6 Jun. 2023 – 10 Jun. 2023, IEEE, June 2023b. ISBN 979-8-3503-2291-0. URL <https://doi.org/10.1109/MECO58584.2023.10155057>
- [2022] Mohammed Khudhair Abbas and Mehmet Tahir Sandikkaya. An efficient VoLTE covert timing channel for 5G networks: RDCTC. *Optik*, 270:170076, November 2022. ISSN 0030-4026. URL <https://doi.org/10.1016/j.ijleo.2022.170076>
- [2022] Mostafa Mohammadpourfard, Fateme Ghanaatpishe, Yang Weng, Istemihaan Genc, and Mehmet Tahir Sandikkaya. Real-time detection of cyber-attacks in modern power grids with uncertainty using deep learning. In *2022 International Conference on Smart Energy Systems and Technologies (SEST)*, pages 1–6. Eindhoven, Netherlands, 5 Sep. 2022 – 7 Sep. 2022, IEEE, September 2022. ISBN 978-1-6654-0557-7. URL <https://doi.org/10.1109/SEST53650.2022.9898413>
- [2022] Berkan Ufuk and Mehmet Tahir Sandikkaya. Moving target defense router: MaTaDoR. In Sabrina De Capitani di Vimercati and Pierangela Samarati, editors, *Proceedings of the 19th International Conference on Security and Cryptography - SECRYPT*, volume 1, pages 649–654. Lisbon, Portugal, 11 Jul. 2022 – 13 Jul. 2022, SciTePress, July 2022. ISBN 978-989-758-590-6. URL <https://doi.org/10.5220/0011306500003283>
- [2020] Mehmet Tahir Sandikkaya, Yusuf Yaslan, and Cemile Diler Özdemir. DeMETER in clouds: detection of malicious external thread execution in runtime with machine learning in PaaS clouds. *Cluster Computing*, 23(4):2565–2578, December 2020. ISSN 1386-7857. URL <https://doi.org/10.1007/s10586-019-03027-8>
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- [2020] Tolga Bilbey and Mehmet Tahir Sandikkaya. The effects of gamification to private data collection. *Journal of Computational Design*, 1(3):133–154, September 2020. ISSN 2687-4318. URL <https://dergipark.org.tr/tr/pub/jcode/issue/57045/764526>
- [2020] Gökay Şimşek and Mehmet Tahir Sandikkaya. Parking IoT: An iot architecture to collect availability data from parking lots. In *2020 9th Mediterranean Conference on Embedded Computing (MECO)*, pages 1–5. Budva, Montenegro, Montenegro, 8 Jun. 2020 – 11 Jun. 2020, IEEE, July 2020. ISBN 978-1-7281-6949-1. URL <https://doi.org/10.1109/MECO49872.2020.9134335>
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- [2019] Cemile Diler Özdemir, Mehmet Tahir Sandikkaya, and Yusuf Yaslan. Malicious behavior classification in PaaS. In Víctor Méndez Muñoz, Donald Ferguson, Markus Helfert, and Claus Pahl, editors, *CLOSER 2018: Cloud Computing and Services Science*, volume 1073 of *Communications in Computer and Information Science (CCIS)*, pages 215–232. Springer International Publishing, August 2019. ISBN 978-3-030-29192-1. URL https://doi.org/10.1007/978-3-030-29193-8_11
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- [2015] Mehmet Tahir Sandikkaya. *Bilgişlem Ortamı Sunan Bulut için Güvenlik Düzenekleri*. PhD thesis, Istanbul Technical University, Istanbul, Turkey, 2015. URL http://www.sandikkaya.name.tr/pub/DrTez_SANDIKKAYA,MT_TR.pdf. (Turkish. English title: Security Mechanisms for PaaS Cloud)
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- [2009] Mohamed Layouni, Kristof Verslype, Mehmet Tahir Sandikkaya, Bart De Decker, and Hans Vangheluwe. Privacy-Preserving Telemonitoring for eHealth. In Ehud Gudes and Jaideep Vaidya, editors, *Data and Applications Security XXIII (DBSec 2009)*, volume 5645 of *Lecture Notes in Computer Science*, pages 95–110. 23rd Annual IFIP WG 11.3 Working Conference, Montreal, Canada, 12 Jul. 2009 – 15 Jul. 2009, Springer Berlin Heidelberg, July 2009. ISBN 978-3-642-03006-2. URL https://doi.org/10.1007/978-3-642-03007-9_7

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- [2006] Mehmet Tahir Sandıkkaya and Mehmet Bülent Örencik. Agent-Based Offline Electronic Voting. In *30th Annual International Computer Software and Applications Conference (COMPSAC'06)*, volume 2, pages 333–340. Chicago, IL, USA., 17 Sep. 2006 – 21 Sep. 2006, IEEE, December 2006. ISBN 0-7695-2655-1. URL <https://doi.org/10.1109/COMPSAC.2006.107>
- [2005] Mehmet Tahir Sandıkkaya. Etmenlerle Elektronik Oylama. Master's thesis, Istanbul Technical University, Istanbul, Turkey, 2005. URL http://www.sandikkaya.name.tr/pub/YLTez_SANDIKKAYA_MT_TR.pdf. (Turkish. English title: Electronic Voting with Agents)

Projects

- SWAIN. Sustainable Watershed Management Through IoT-Driven Artificial Intelligence. CHIST-ERA of EU, 2021. Mar. 2021–Mar. 2025
- NİCASGÜZED. A Mechanism to Mitigate Security Weaknesses Encountered During Authentication of IoT Devices. Istanbul Technical University, 2021. Jun. 2021–Mar. 2024
- SMOC. Improving the Performance of Distributed State Machine Performance on Cloud Systems. The Scientific and Technological Research Council of Turkey, 2019. Dec. 2019–Dec. 2021
- NİÇEHA. Multi-Factor Lightweight Authentication for IoT. Istanbul Technical University, 2018. Oct. 2018–Jul. 2021
- HoneyWalt. Building an Extendable IoT Honeypot. Embassy of France in Ankara & Istanbul Technical University, 2018. Aug. 2018–Feb. 2019
- FEnCY. Pollutant Fingerprint Detection based Functional Integrated Geographic Information Management Software for Ergene Basin. The Scientific and Technological Research Council of Turkey, 2016. Jan. 2016–Jun. 2019
- Cloud Fortification. Operational Optimization of a Cloud System Serving Software Development Platform. Republic of Turkey - Ministry of Science, Industry and Technology, 2013. Oct. 2013–Jun. 2015
- Secure Cloud. Developing a Secure Cloud Computing Structure. Istanbul Technical University, 2011. Apr. 2011–Apr. 2013
- DiCoMas. DiCoMas –Distributed Collaboration using Multi-Agent System Architectures. IWT (Kingdom of Belgium - Institute for Innovation through Science and Technology in Flanders), 2007. Oct. 2007–Sep. 2011

Consultancy¹

- Cyber-Physical Systems Security in Avionics. Avionics Cyber-Security Frontier R&D Laboratory. *Establishment of Frontier R&D Laboratory*, 2023. TÜBİTAK –The Scientific and Technological Research Council of Turkey, Oct. 2023–Oct. 2024
- Security Analysis of Smart Grid. Analysis of weaknesses in current smart grid communication and management protocols. *Provided data is used for further smart grid security mechanism designs*, 2022. TÜBİTAK –The Scientific and Technological Research Council of Turkey, Jan. 2022–Jan. 2023
- Continuous Assessment of Critical IT Systems. Design & application of a continuous security assessment procedure for critical information technologies systems of e-services companies. *The continuous assessment methodology is widely adopted among legal betting companies of Turkey*, 2021. Investor-funded, Jan. 2022–Sep. 2022

¹Details are omitted with respect to non-disclosure agreements.

- Decofinder. Design & implemenation of an AI-based chipboard & edge band decor search and matching engine. *The edge band search and matching engine is adopted in the furniture industry*, 2021. Investor-funded, Jul. 2021–Mar. 2022
- Certification of Critical IT Systems. Design & application of a generic performance & security certification procedure for critical information technologies systems of e-services companies. *The certification is widely adopted among legal betting companies of Turkey*, 2020. Investor-funded, Oct. 2020–Dec. 2021
- Smart Billboard. Design of a smart, scalable, multi-source data synchronization enabled digital billboard management software. *The smart billboards are widely adopted in many retail chain companies in Turkey and abroad*, 2020. TÜBİTAK –The Scientific and Technological Research Council of Turkey, Jul. 2020–Oct. 2020
- Smart City Privacy. Design of privacy-enhancing technologies for a semantic smart-city platform. *The platform is in use in many metropolitan municipalities of Turkey*, 2016. TÜBİTAK –The Scientific and Technological Research Council of Turkey, Jul. 2016–Jun. 2018
- e-invoice. Design of an e-invoice archive system. *The infrastructure has been approved and used by state financial bodies in Turkey*, 2015. İTÜ ARI Teknokent Proje Geliştirme Planlama A.Ş., Apr. 2015–Dec. 2015
- Mobile Payment. Design of a mobile money transfer and payment system. *The protocols & infrastructure is widely adopted among retail sector and many major banks of Turkey.*, 2013. TÜBİTAK –The Scientific and Technological Research Council of Turkey, Jul. 2013–Dec. 2016
- Mobile OTP. Design of a generic mobile OTP application & password manager. *The application is widely adopted among Fortune 500 companies.*, 2011. Investor-funded, Dec. 2010–Dec. 2014