

Şanser Güz

Ph.D. Candidate, The University of Tokyo

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Education

Ph.D. in Technology Management for Innovation	<i>expected 2026</i>
Minor in Science, Technology and Innovation Governance, UTokyo GraSPP & GSE The University of Tokyo, Graduate School of Engineering	Tokyo, Japan
M.S. in Industrial Engineering	2022
Boğaziçi University	Istanbul, Turkey
B.S. in Industrial Engineering	2020
Minor in Film Studies Boğaziçi University	Istanbul, Turkey

Research Areas

Themes: Socio-economic systems; complex adaptive systems; energy transitions; industrial ecology; circular economy; public policy; computational social science; dynamic decision-making.

Methods: Agent-based modeling; system dynamics; network analysis; integrated simulation; model coupling; scenario design and analysis; policy analysis; statistical analysis.

Academic Employment

Research Assistant	2024–ongoing
The University of Tokyo, Graduate School of Engineering Murakami Laboratory	
Researcher (Remote)	2023–ongoing
Boğaziçi University, Institute of Environmental Sciences PRIMA (Partnership for Research and Innovation in the Mediterranean Area) Project	
Graduate Teaching & Research Assistant	2020–2022
Boğaziçi University, Department of Industrial Engineering Socio-economic System Dynamics Laboratory	
Graduate Teaching & Research Assistant	2020–2022
Koç University, College of Administrative Sciences and Economics	

Publications

Peer-Reviewed Journal Articles

- Güz, Ş., & Murakami, S. (2026). Adaptive reconfiguration of the global cobalt supply chain under responsible procurement and circularity pathways. *Resources, Conservation & Recycling*, 229, 108856. <https://doi.org/10.1016/j.resconrec.2026.108856>
- Güz, Ş., Uygur, İ., Coptý, N. K., & Saysel, A. K. (2025). Dynamic coupling of hydrogeology and human decision-making for sustainable groundwater management in Konya Closed Basin, Türkiye. *Journal of Hydrology: Regional Studies*, 62, 103013. <https://doi.org/10.1016/j.ejrh.2025.103013>
- Güz, Ş., & Murakami, S. (2025). A systematic literature review of simulation models for flows, markets, and sustainability of critical energy transition minerals. *Resources, Conservation & Recycling Advances*, 27, 200271. <https://doi.org/10.1016/j.rcradv.2025.200271>
- İrsoy, O., Güz, Ş., Akan, N. B., & Yücel, G. (2021). Dynamic trade-offs in granulocyte colony-stimulating factor (G-CSF) administration during chemotherapy. *System Dynamics Review*, 36(4), 397–446. <https://doi.org/10.1002/sdr.1671>

Manuscripts In-Preparation

1. **Güz, Ş.**, Haga, K., & Murakami, S. Transformation in interdependent critical mineral supply chains under energy transition pathways. *Manuscript in preparation*.
2. **Güz, Ş.**, Karanfil, Ö., & Yücel, G. How structure shapes resilience in public health service: A feedback-driven dynamic model. *Working paper*.

Conference Presentations

1. **Güz, Ş.**, Haga, K., & Murakami, S. (2026). Interdependent critical mineral supply chains under energy transitions: an agent-based trade and production model. *13th International Congress on Environmental Modelling and Software*, Dublin, Ireland. *Accepted for presentation in July 2026*.
2. **Güz, Ş.**, & Murakami, S. (2025). An agent-based model of global mineral supply chains under energy transition pressure: Towards integrated demand, supply, and impact assessment. *ESSA Social Simulation Conference 2025*, Delft, Netherlands.
3. **Güz, Ş.**, Uygur, I., Saysel, A. K., & Coptý, N. (2025). Bridging hydrogeology and human decision-making for sustainable groundwater management through a coupled simulation model. *ESSA Social Simulation Conference 2025*, Delft, Netherlands.
4. **Güz, Ş.**, Uygur, I., Saysel, A. K., & Coptý, N. (2025). Bridging hydrogeological dynamics and human decision-making for sustainable groundwater management in irrigated agricultural regions. *2nd International Sociohydrology Conference*, Tokyo, Japan. Parallel session: *Sustainable groundwater and land use management*.
5. **Güz, Ş.**, & Murakami, S. (2025). An agent-based model of supply chain dynamics for critical energy transition minerals. *12th International Conference on Industrial Ecology*, Singapore.
6. **Güz, Ş.**, & Murakami, S. (2024). Critical minerals in energy transitions and approaches to modeling: A literature review. *16th Biennial International Conference Ecobalance*, Sendai, Japan.
7. **Güz, Ş.**, Uygur, I., Saysel, A. K., & Coptý, N. (2024). Coupling system dynamics and hydrogeological models for sustainable groundwater management for Konya Basin, Türkiye. *Sustain Istanbul 2024*, Istanbul, Turkey. Parallel session: *Governance and policy towards sustainable groundwater management*.
8. **Güz, Ş.**, Yücel, G., & Karanfil, Ö. (2022). Dynamic analysis of public health insurance programmes. *40th International Conference of the System Dynamics Society*, Frankfurt, Germany. Parallel session: *Health Finance*. Awarded Lupina Young Researchers Award – Honorable Mention.
9. Karanfil, Ö., **Güz, Ş.**, İrsøy, O., & Hashemian, M. (2022). What is the stakeholder effect on clinical guideline formation? An experimental study. *39th International Conference of the System Dynamics Society*, Chicago, Illinois, USA. Parallel session: *Clinical Care Improvement*.
10. Karanfil, Ö., **Güz, Ş.**, İrsøy, O., & Hashemian, M. (2021). Stakeholder effect in the formation of policy and practice guidelines: An experimental study for medical screening. *40th Congress on Operations Research / Industrial Engineering*, Istanbul, Turkey. Parallel session: *System Dynamics Applications in Healthcare*.
11. **Güz, Ş.**, İrsøy, O., Akan, N. B., & Yücel, G. (2020). Managing chemotherapy-induced neutropenia using exogenous granulocyte colony-stimulating factor. *38th International Conference of the System Dynamics Society*, Bergen, Norway. Plenary session: *Scientific Advances*. Awarded Lupina Young Researchers Award – Honorable Mention.

Software & Data

1. **Güz, Ş.** (2025). Spatiotemporal coupling program for integrating process-based and system dynamics models in sustainable groundwater management [Computer software]. Zenodo. <https://doi.org/10.5281/zenodo.14903045>

Awards and Scholarships

MEXT Research and Ph.D. Scholarship

2022–2026

(2022–2023: Research Student Scholarship; 2023–2026: Ph.D. Scholarship)

Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan

The University of Tokyo, Tokyo, Japan

Lupina Young Researchers Award, Honorable Mention International System Dynamics Conference, Frankfurt, Germany	2022
Lupina Young Researchers Award, Honorable Mention International System Dynamics Conference, Bergen, Norway	2020
TÜBİTAK 2210-A National MSc/MA Scholarship The Scientific and Technological Research Council of Turkey (TÜBİTAK) Boğaziçi University, Istanbul, Turkey	2020–2022
JASSO Student Scholarship Japan Student Services Organization (JASSO) University of Tsukuba, Ibaraki, Japan	2017–2018

Teaching Experience

GLBH 524: Systems Modeling for Health Policy Analysis (Graduate course) Koç University, School of Medicine Teaching Assistant for Dr. Özge Karanfil	Spring 22, Fall 23
IE 533: Systems Theory (Graduate course) Boğaziçi University, Department of Industrial Engineering Teaching Assistant for Dr. Gönenç Yücel	Spring 22
TECH 517: Strategic Systems Modeling (Graduate course) Koç University, College of Administrative Sciences and Economics Teaching Assistant for Dr. Özge Karanfil and Dr. Mahdi Hashemian	Fall 21, Spring 22, Fall 22

Professional Skills

Technical Skills

Modeling: STELLA, Mesa, NetLogo, Vensim, MODFLOW, ARENA
Programming: Python, C, C++, CMPL, GAMS, SIMAN, LaTeX, HTML
Data Analysis: RStudio

Languages

Turkish (Native), English (Fluent), Japanese (N2 - Upper-intermediate)

Professional Memberships

International Society for Industrial Ecology	2025 - present
European Social Simulation Association	2025 - present
System Dynamics Society	2020 - 2022

References

Shinsuke Murakami, Ph.D.

Professor
Graduate School of Engineering, The University of Tokyo
smurakam@tmi.t.u-tokyo.ac.jp

Ali Kerem Saysel, Ph.D.

Professor
System Dynamics Group, University of Bergen
ali.saysel@uib.no

Gönenç Yücel, Ph.D.

Associate Professor and Department Vice-Chair
Faculty of Engineering, Boğaziçi University
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