YUYUE, YAN

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Toyonaka City, Osaka, 560-0043, Japan

PERSONAL INFORMATION

Nationality: Chinese,   Birthday: October 18th 1995,   Male

Google scholar: Citation: 145, h-index: 7

ResearchGate: https://www.researchgate.net/profile/Yuyue-Yan

EDUCATION

Doctor of Philosophy   Systems and Control Engineering

Tokyo Institute of Technology, Tokyo, Japan, September 2022   Advisor: Tomohisa Hayakawa

Ph.D.Thesis: *Control of self-interested agents in noncooperative dynamical systems*

Master of Engineering   Systems and Control Engineering

Tokyo Institute of Technology, Tokyo, Japan, September 2019   Advisor: Tomohisa Hayakawa

Thesis: *Stability and stabilization of noncooperative dynamical systems*

Bachelor of Engineering   Electronic Information Engineering

Xiamen University Tan Kah Kee College, Zhangzhou, China, July 2017

Thesis: *Pedestrian evacuation model with the consideration of guiding effects*

WORK EXPERIENCE

Specially Appointed Researcher	Osaka University, Japan	2024 Apr.–2025 Mar.
Visiting Researcher	Southern University of Science and Technology, China	2023 Oct.–2024 Feb.
Research Fellow	Tokyo Institute of Technology, Japan	2022 Oct.–2023 Aug.

PROFESSIONAL EXPERIENCE

Graduate Teaching Assistant

October 2019 – February 2020, Systems and Control Engineering, Tokyo Institute of Technology

Reviewer for

- Automatica, IEEE Transactions on Control of Network Systems, IEEE Transactions on Automation Science and Engineering, IEEE Control Systems Letters
- American Control Conference, IEEE Conference on Decision and Control

RESEARCH INTERESTS

Game theory, control theory, multi-agent system, networked system, optimization, dynamical system, multi-objective optimization, transportation system, economic/social systems, atomic clocks

WORKING PAPERS

[1] **Y. Yan**, Maojiao Ye*, Yuhu Wu, and Kazumune Hashimoto. (2024) Social welfare maximization in noncooperative dynamical systems with privacy-preserving incentive mechanism. *Submitted to IEEE Transactions on Automatic Control*. (Provisionally rejected, may resubmit as regular paper)

[2] **Y. Yan**, Maojiao Ye, L. Ding, Q-L. Han, and K. Hashimoto. (2024) Information concealed Pareto-efficient incentive mechanism with strong balanced budget under concurrent learning. *Submitted to IEEE Transactions on Automatic Control*, under review (regular paper).

[3] Maojiao Ye, **Y. Yan***, L. Ding, Q-L. Han, and Q. Cai. (2024) A novel privacy-preserving incentive mechanism for time-varying social cost minimization of noncooperative dynamical systems. *Submitted to Automatica*, under review (regular paper).

[4] K. Jiang, J. Wang, C. Li, **Y. Yan***, Yuhu Wu (2024) A time-varying inertia-based strategy updating rule for evolutionary congestion games. *Submitted to Automatica*. (Provisonally rejected)

[5] J. Shi, Maojiao Ye*, **Y. Yan**, S. Xiao, L. Ding. (2024) Distributed optimal double-layer formation control for multi-cluster systems by a game-based approach. *Submitted to Automatica*, under review (regular paper).

PUBLICATION: JOURNAL PAPERS

[J1] **Y. Yan*** and T. Hayakawa. (2024) Incorporation of likely future actions of agents into pseudo-gradient dynamics of noncooperative games. *IEEE Transactions on Automatic Control*, regular paper, 69(11): 7662-7677. DOI: 10.1109/TAC.2024.3397167

[J2] **Y. Yan** and T. Hayakawa*. (2024) Pareto-improving incentive mechanism for noncooperative dynamical systems under sustainable budget constraint. *IEEE Transactions on Automatic Control*, regular paper, 69(7): 4291-4306. DOI: 10.1109/TAC.2023.3325412

[J3] **Y. Yan***, T. Kawaguchi, Y. Yano, et al. (2024) Structured Kalman filter for time scale generation in atomic clock ensembles. *IEEE Control Systems Letters*, 8:187–192. DOI: 10.1109/LCSYS.2023.3341281

[J4] **Y. Yan** and T. Hayakawa*. (2023) Hierarchical noncooperative dynamical systems under intra-group and inter-group incentives. *IEEE Transactions on Control of Network Systems*, 11(2):734-755. DOI: 10.1109/TCNS.2023.3242359

[J5] **Y. Yan** and T. Hayakawa*. (2022) Stability analysis of Nash equilibrium for 2-agent loss-aversion-based noncooperative switched systems. *IEEE Transactions on Automatic Control*, 67(5), 2505-2513. (Impact Factor: 6.8) DOI: 10.1109/TAC.2021.3079276

[J6] **Y. Yan** and T. Hayakawa*. (2022) Stability and stabilization of Nash equilibrium for uncertain noncooperative dynamical systems with tax/subsidy approach. *IEEE Transactions on Cybernetics*. 52(11): 11287-11298 (Impact Factor: 11.8) DOI: 10.1109/TCYB.2022.3154109

[J7] X. Xu, T. Dai, J. Luo, **Y. Yan**, J. Qiu*. (2023) Propagation characteristics of electromagnetic field penetrated into laminated CFRPs using eddy current testing with pancake coil. *Composite Structures*, 303: 116378. (Impact Factor: 6.3) DOI: 10.1016/j.compstruct.2022.116378

[J8] F. Gao, **Y. Yan***, Z. Chen, L. Zheng, and H. Ren (2022) Effect of density control in partially observable asymmetric-exit evacuation under guidance: Strategic suggestion under time delay. *Applied Mathematics and Computation*, 418, 126838. (Impact Factor: 4.0) DOI: 10.1016/j.amc.2021.126838

[J9] H. Ren, **Y. Yan*** and F. Gao. (2021) Variable guiding strategies in multi-exits evacuation: Pursuing balanced pedestrian densities. *Applied Mathematics and Computation*, 397, 125965. (Impact Factor: 4.0) DOI: 10.1016/j.amc.2021.126838

CONFERENCE PAPERS

[C1] **Y. Yan**, M. Ye, K. Hashimoto, Y. Wu, and H. Kong. (2024) Incentive design in noncooperative dynamical systems for social welfare maximization using limited payoff information, *Proceedings of IEEE Conference on Decision and Control*, pp. 5280-5285.

[C2] **Y. Yan**, T. Kawaguchi, Y. Yano, Y. Hanado, and T. Ishizaki. (2023) Spectral decomposition in Kalman filter algorithm for homogeneous atomic clock ensembles, *Proceedings of IEEE Conference on Decision and Control*, pp. 3814-3819.

[C3] Z. Guo, T. Hayakawa, **Y. Yan**. (2023) Stability and stabilization of Nash equilibrium for noncooperative systems with vector-valued payoff functions *Proceedings of 62nd IEEE Conference on Decision and Control*, pp. 203-208.

[C4] **Y. Yan**, T. Kawaguchi, Y. Yano, Y. Hanado, and T. Ishizaki. (2023) Equivalence of JST algorithm and Kalman filtering algorithm for time scale generation. *Proceedings of IEEE International Symposium on Precision Clock Synchronization for Measurement, Control, and Communication*, pp. 1–7.

[C5] **Y. Yan**, N. J. Jensen, T. Kawaguchi, Y. Yano, Y. Hanado, and T. Ishizaki. (2023) Possibility of prediction improvements for atomic clock ensembles: Basis selection in undetectable systems, *Proceedings of IFAC World Congress 2023*, pp. 6500–6505.

[C6] Z. Guo, T. Hayakawa, **Y. Yan**. (2023) The Nash Equilibrium of 2-Agent Game with Quadratic Vector Payoff Functions and Its Stability, *Proceedings of IFAC World Congress 2023*, pp. 3151–3156.

[C7] **Y. Yan** and T. Hayakawa. (2022) Pseudo-gradient dynamics with cognitive predictions in noncooperative dynamical systems. *Proceedings of IEEE Conference on Decision and Control*, pp. 5725–5730.

[C8] **Y. Yan** and T. Hayakawa. (2022) Pareto improving incentive mechanism for noncooperative dynamical systems under sustainable budget constraint. *Proceedings of American Control Conference*, pp. 580-585.

[C9] **Y. Yan** and T. Hayakawa. (2021) Hierarchical noncooperative systems with dynamic agents under intra-group and inter-group incentives. *Proceedings of IEEE Conference on Decision and Control*, pp. 1644-1649. Recipient of SICE International Young Authors Award.

[C10] **Y. Yan** and T. Hayakawa. (2021) Loss-averse behavior may destabilize Nash equilibrium: Generalized stability results for noncooperative agents. *Proceedings of IEEE Conference on Decision and Control*, pp. 3824-3829.

[C11] **Y. Yan** and T. Hayakawa. (2020) Existence of feasible provisional transfer-based tax/subsidy approach for stabilizing noncooperative dynamical systems: graph analysis. *Proceedings of European Control Conference*, pp.142-147.

[C12] **Y. Yan** and T. Hayakawa. (2019) Social welfare improvement for noncooperative dynamical systems with tax/subsidy approach. *Proceedings of IEEE Conference on Decision and Control*, pp. 3116-3121.

[C13] **Y. Yan**, T. Hayakawa and N. Thanomvajamun, (2019) Stability analysis of Nash equilibrium in loss-aversion-based noncooperative dynamical systems. *Proceedings of IEEE Conference on Decision and Control*, pp. 3122-3127.

[C14] **Y. Yan** and T. Hayakawa. (2019) Bifurcation analysis and tax/subsidy approach in noncooperative dynamical systems. *Proceedings of American Control Conference*, pp. 2303–2308.

HONORS AND AWARD

2022	SICE International Young Authors Award, SICE, Japan
2022	Recipient of the TSUBAME special scholarship, Tokyo Institute of Technology, Japan
2019	Recipient of the Chinese Scholarship Council scholarship (Doctor program), China
2017	Recipient of the Chinese Scholarship Council scholarship (Master program), China
2016	First prize in Fujian College Students Electronic Design Competition, China
2015	National Second Prize in National College Students Electronic Design Competition, China

MEMBERSHIP

IEEE Member, IEEE IES Technical Committee on Network-Based Control Systems and Applications

TECHNICAL STRENGTHS

Computer Languages	MATLAB, C, Verilog HDL
Software & Tools	LaTeX, Adobe Illustrator, MATLAB