List of Publications

November 8, 2023

1 Publications

1.1 Book chapters

[1] Grzegorz A. Rempała and **Wasiur R. KhudaBukhsh**. Dynamical survival analysis for epidemic modeling. In *Handbook of Visual, Experimental and Computational Mathematics*, pages 1–17. Springer International Publishing, 2023.

1.2 Peer-reviewed journal publications

[2] István Z. Kiss, Luc Berthouze, and **Wasiur R. KhudaBukhsh**. Towards inferring network properties from epidemic data. *Bulletin of Mathematical Biology*, 2024. Accepted for publication. Preprint: `https://arxiv.org/abs/2302.02470`.

[3] **Wasiur R. KhudaBukhsh**, Sat Kartar Khalsa, Eben Kenah, Grzegorz Rempała, and Joseph Tien. COVID-19 dynamics in an Ohio prison. *Frontiers in Public Health*, 2023.

[4] **Wasiur R. KhudaBukhsh**, Caleb Deen Bastian, Matthew Wascher, Colin Klaus, Saumya Yashmohini Sahai, Mark H. Weir, Eben Kenah, Elisabeth Root, Joseph H. Tien, and Grzegorz A. Rempała. Projecting COVID-19 cases and hospital burden in ohio. *Journal of Theoretical Biology*, 561:111404, 2023.

[5] Colin Klaus, Matthew Wascher, **Wasiur R. KhudaBukhsh**, and Grzegorz Rempała. Likelihood-Free Dynamical Survival Analysis applied to the COVID-19 epidemic in Ohio. *Mathematical Biosciences and Engineering*, 20, 2023.

[6] Kai Cui, **Wasiur R. KhudaBukhsh**, and Heinz Koeppl. Hypergraphon mean-field games. *Chaos*, 2022.

[7] **Wasiur R. KhudaBukhsh**, Casper Woroszylo, Grzegorz Rempała, and Heinz Koeppl. A functional central limit theorem for SI processes on configuration model graphs. *Advances in Applied Probability*, 2022.

[8] Colin Klaus, Matthew Wascher, **Wasiur R. KhudaBukhsh**, Joseph H. Tien, Grzegorz A. Rempała, and Eben Kenah. Assortative mixing among vaccination groups and biased estimation of reproduction numbers. *The Lancet Infectious Diseases*, 22:P579–581, 5 2022.

[9] Francesco Di Lauro*, **Wasiur R. KhudaBukhsh***, István Z. Kiss, Eben Kenah, Max Jensen, and Grzegorz Rempała. Dynamic survival analysis for non-markovian epidemic models. *Journal of the Royal Society Interface*, 2022. *Both authors contributed equally and are joint first authors.

[10] Kai Cui, **Wasiur R. KhudaBukhsh**, and Heinz Koeppl. Motif-based mean-field approximation of interacting particles on clustered networks. *Physical Review E*, 105, 4 2022.

[11] Harley Vossler, Pierre Akilimali, Yuhan Pan, **Wasiur R. KhudaBukhsh**, Eben Kenah, and Grzegorz A. Rempała. Analysis of individual-level epidemic data: Study of 2018-2020 ebola outbreak in democratic republic of the congo. *Scientific Reports*, 12, 2022.

[12] Ido Somekh*, **Wasiur R. KhudaBukhsh***, Elisabeth Dowling Root*, Greg Rempala, Eric Simoes, and Eli Somekh. Quantifying the Population-level Effect of COVID-19 Mass Vaccination Campaign in Israel: A Modeling Study. *Open Forum Infectious Diseases*, 2022. *Equal contribution.

[13] **Wasiur R. KhudaBukhsh***, Hye-Won Kang, Eben Kenah, and Grzegorz Rempała. Incorporating age and delay into models for biophysical systems. *Physical Biology*, 18(1), 2021. (*Invited paper).

[14] **Wasiur R. KhudaBukhsh**, Boseung Choi, Eben Kenah, and Grzegorz Rempała. Survival dynamical systems: individual-level survival analysis from population-level epidemic models. *Journal of the Royal Society Interface Focus*, 10(1), 2020.

[15] **Wasiur R. KhudaBukhsh**, Arnab Auddy, Yann Disser, and Heinz Koeppl. Approximate lumpability for Markovian agent-based models using local symmetries. *Journal of Applied Probability*, 56, 9 2019.

[16] Hye-Won Kang*, **Wasiur R. KhudaBukhsh***, Heinz Koeppl, and Grzegorz Rempała. Quasi-steady-state approximations derived from a stochastic enzyme kinetics. *Bulletin of Mathematical Biology*, 81(5):1303–1336, 2019. *joint first authors.

[17] Saumya Yashmohini Sahai, Saket Gurukar, **Wasiur R. KhudaBukhsh**, Srinivasan Parthasarathy, and Grzegorz A. Rempała. A Machine Learning Model for Nowcasting Epidemic Incidence. *Mathematical Biosciences*, 2021.

[18] **Wasiur R. KhudaBukhsh**, Sounak Kar, Bastian Alt, Amr Rizk, and Heinz Koeppl. Generalized cost-based job scheduling in very large cluster systems. *IEEE Transactions on Parallel and Distributed Systems*, 31(11):2594–2604, 2020.

[19] Boseung Choi, Sydney Busch, Dieudonné Kazadi, Benoit Ilunga, Emile Okitolonda, Yi Dai, Robert Lumpkin, Omar Saucedo, **Wasiur R. KhudaBukhsh**, Joseph Tien, Marcel Yotebieng, Eben Kenah, and Grzegorz A. Rempała. Modeling Outbreak Data: Analysis of a 2012 Ebola Virus Disease Epidemic in DRC. *BIOMATH*, 8(2), 2019.

[20] **Wasiur R. KhudaBukhsh**, Amr Rizk, Sounak Kar, and Heinz Koeppl. Provisioning and performance evaluation of parallel systems with output synchronization. *ACM Transactions on Modeling and Performance Evaluation of Computing Systems (TOMPECS)*, 4(1), 3 2019.

[21] Bastian Alt, Markus Weckesser, Christian Becker, Matthias Hollick, Sounak Kar, Anja Klein, Robin Klose, Roland Kluge, Heinz Koeppl, Boris Koldehofe, **Wasiur R. KhudaBukhsh**, Mahdi Mousavi, Martin Pfannemueller, Amr Rizk, Andy Schuerr, and Ralf Steinmetz. Transitions: A protocol-independent view of the future internet. *Proceedings of the IEEE*, 107(4):835–846, 4 2019.

1.3 Peer-reviewed conference proceedings

[22] Riccardo Corradin, Luca Danese, **Wasiur KhudaBukhsh**, and Andrea Ongaro. Model-based clustering of non-stationary time series with common historical change times. In *Statistical Learning, Sustainability and Impact*, 2023.

[23] **Wasiur R. KhudaBukhsh**, Bastian Alt, Sounak Kar, Amr Rizk, and Heinz Koeppl. Collaborative uploading in heterogeneous networks: Optimal and adaptive strategies. In *IEEE International Conference on Computer Communications (INFOCOM)*, 4 2018. $< 20\%$ acceptance rate. Best-in-Session Presentation Award.

[24] **Wasiur R. KhudaBukhsh**, Amr Rizk, Alexander Frömmgen, and Heinz Koeppl. Optimizing Stochastic Scheduling in Fork-Join Queueing Models: Bounds and Applications. In *IEEE International Conference on Computer Communications (INFOCOM)*, 5 2017. $\sim 20\%$ acceptance rate.

[25] Adrian Šošić, **Wasiur R. KhudaBukhsh**, A. M. Zourbir, and Heinz Koeppl. Inverse reinforcement learning in swarm systems. In *AAMAS Workshop on Transfer in Reinforcement Learning*, May 2017. Available: `http://www.tirl.info/proceedings/2017/SosicEtal-Inverse.pdf`.

[26] Adrian Šošić, **Wasiur R. KhudaBukhsh**, A. M. Zourbir, and Heinz Koeppl. Inverse reinforcement learning in swarm systems. In *International Conference on Autonomous Agents & Multiagent Systems (AAMAS)*, 5 2017. $\sim 26\%$ acceptance rate, Best Paper Award Finalist.

[27] **Wasiur R. KhudaBukhsh**, Julius Rückert, Julian Wulfheide, David Hausheer, and Heinz Koeppl. Analysing and Leveraging Client Heterogeneity in Swarming-based Live Streaming. In *IFIP Networking Conference (IFIP Networking) and Workshops*, 5 2016. $\sim 26\%$ acceptance rate.

[28] Mahdi Mousavi, Hussein Al Shatri, **Wasiur R. KhudaBukhsh**, Heinz Koeppl, and Anja Klein. Cross-Layer QoE-based Incentive Mechanism for Video Streaming in Multi-Hop Wireless Networks. In *IEEE 86th Vehicular Technology Conference (VTC)*, 9 2017.

1.4 Preprints/Submitted

[29] Karim Elsayed, **Wasiur R. KhudaBukhsh**, and Amr Rizk. On the Fidelity Distribution of Link-level Entanglements under Purification. 2023. Submitted. Preprint: `https://arxiv.org/abs/2310.18198`.

[30] Yushuf Sharker, Zaynab Diallo, **Wasiur R. KhudaBukhsh**, and Eben Kenah. Pairwise accelerated failure time models for infectious disease transmission in close contact groups with external sources of infection. 2023. Revision requested.

[31] Matthew Wascher, Patrick Schnell, **Wasiur R. KhudaBukhsh**, Mikkel B.M. Quam, Joseph Tien, and Grzegorz Rempała. Estimating disease transmission in a closed population under repeated testing. 2023. Revision requested. Preprint: `https://doi.org/10.1101/2021.06.22.21259342`.

1.5 Thesis and technical notes

[32] **Wasiur R. KhudaBukhsh**. *Model reductions for queueing and agent-based systems with applications in communication networks*. PhD thesis, Technische Universität, Darmstadt, 2018. Available at: `http://tuprints.ulb.tu-darmstadt.de/7588/`.

[33] **Wasiur R. KhudaBukhsh**, Mark Sinzger, and Heinz Koeppl. Bounds on the spectral radius of real-valued non-negative kernels on measurable spaces. Technical report, 2018. arXiv preprint: https://arxiv.org/abs/1808.00258.