













- 10.1080/03772063.2015.1018846.
- [10] L. Liang, "The application of fuzzy PID controller in coupled-tank liquid-level control system", in *Proc. of 2011 International Conference on Electronics, Communications and Control (ICECC)*, 2011, pp. 2894–2897. DOI: 10.1109/ICECC.2011.6067785.
- [11] R. Jain, N. Sivakumaran, and T. K. Radhakrishnan, "Design of self tuning fuzzy controllers for nonlinear systems", *Expert Systems with Applications*, vol. 38, no. 4, pp. 4466–4476, 2011. DOI: 10.1016/j.eswa.2010.09.118.
- [12] S. T. Lian, K. Marzuki, and Y. Rubiyah, "Tuning of a neuro-fuzzy controller by genetic algorithms with an application to a coupled-tank liquid-level control system", *Engineering Applications of Artificial Intelligence*, vol. 11, no. 4, pp. 517–529, 1998. DOI: 10.1016/S0952-1976(98)00012-8.
- [13] F. Behrooz, N. Mariun, M. H. Marhaban, M. A. M. Radzi, and A. R. Ramli, "Review of control techniques for HVAC systems—Nonlinearity approaches based on fuzzy cognitive maps", *Energies*, vol. 11, no. 3, p. 495, 2018. DOI: 10.3390/en11030495.
- [14] S. Mobayen, "A novel global sliding mode control based on exponential reaching law for a class of under-actuated systems with external disturbances", *Journal of Computational and Nonlinear Dynamics*, vol. 11, no. 2, pp. 11–21, 2016. DOI: 10.1115/1.4031087.
- [15] S. Mobayen, "An adaptive fast terminal sliding mode control combined with global sliding mode scheme for tracking control of uncertain nonlinear third-order systems", *Nonlinear Dynamics*, vol. 82, no. 1, pp. 599–610, 2015. DOI: 10.1007/s11071-015-2180-4.
- [16] S. H. Zak and S. Hui, "On variable structure output feedback controllers for uncertain dynamic systems", *IEEE Trans. on Automatic Control*, vol. 38, no. 10, pp. 1509–1512, 1993. DOI: 10.1109/9.241564.
- [17] C. Edwards and S. K. Spurgeon, "Sliding mode stabilization of uncertain systems using only output information", *International Journal of Control*, vol. 62, no. 5, pp. 1129–1144, 1995. DOI: 10.1080/00207179508921587.
- [18] C. Mu and H. He, "Dynamic behavior of terminal sliding mode control", *IEEE Transactions on Industrial Electronics*, vol. 65, no. 4, pp. 3480–3490, Apr. 2018. DOI: 10.1109/TIE.2017.2764842.
- [19] G. Bartolini, E. Punta, and T. Zolezzi, "Approximability properties for second-order sliding mode control systems", *IEEE Transactions on Automatic Control*, vol. 52, no. 10, pp. 1813–1825, Oct. 2007. DOI: 10.1109/TAC.2007.906179.
- [20] K. Ma, "Comments on "Quasi-continuous higher order sliding-mode controllers for spacecraft-attitude-tracking maneuvers"", *IEEE Transactions on Industrial Electronics*, vol. 60, no. 7, pp. 2771–2773, Jul. 2013. DOI: 10.1109/TIE.2012.2196012.
- [21] Q.-Y. Fan and G.-H. Yang, "Adaptive actor-critic design-based integral sliding-mode control for partially unknown nonlinear systems with input disturbances", *IEEE Transactions on Neural Networks and Learning Systems*, vol. 27, no. 1, pp. 165–177, Jan. 2016. DOI: 10.1109/TNNLS.2015.2472974.
- [22] D. Liu and G. Yang, "Prescribed performance model-free adaptive integral sliding mode control for discrete-time nonlinear systems", *IEEE Transactions on Neural Networks and Learning Systems*, vol. 30, no. 7, pp. 2222–2230, Jul. 2019. DOI: 10.1109/TNNLS.2018.2881205.
- [23] Q.-D. Hoang, V. A. Rosas-Cervantes, S.-G. Lee, I.-S. Weon, J.-H. Choi, and Y.-H. Kwon, "Robust finite-time convergence control mechanism for high-precision tracking in a hybrid fluid power actuator", *IEEE Access*, vol. 8, pp. 196775–196789, 2020. DOI: 10.1109/ACCESS.2020.3033799.
- [24] M. Ö. Efe, "Fractional fuzzy adaptive sliding-mode control of a 2-DOF direct-drive robot arm", *IEEE Transactions on Systems, Man, and Cybernetics, Part B (Cybernetics)*, vol. 38, no. 6, pp. 1561–1570, 2008. DOI: 10.1109/TSMCB.2008.928227.
- [25] Y. Wang, L. Gu, Y. Xu, and X. Cao, "Practical tracking control of robot manipulators with continuous fractional-order nonsingular terminal sliding mode", *IEEE Transactions on Industrial Electronics*, vol. 63, no. 10, pp. 6194–6204, 2016. DOI: 10.1109/TIE.2016.2569454.
- [26] M. N. Soorki and M. S. Tavazoei, "Adaptive robust control of fractional-order swarm systems in the presence of model uncertainties and external disturbances", *IET Control Theory & Applications*, vol. 12, no. 7, pp. 961–969, 2018. DOI: 10.1049/iet-cta.2017.0035.
- [27] M. Bataghva and M. Hashemi, "Adaptive sliding mode synchronisation for fractional-order non-linear systems in the presence of time-varying actuator faults", *IET Control Theory & Applications*, vol. 12, no. 3, pp. 377–383, 2018. DOI: 10.1049/IET-CTA.2017.0458.
- [28] R. Li, F. Wu, P. Hou, and H. Zou, "Performance assessment of FO-PID temperature control system using a fractional order LQG benchmark", *IEEE Access*, vol. 8, pp. 116653–116662, 2020. DOI: 10.1109/ACCESS.2020.3004701.
- [29] P. P. Arya and S. Chakrabarty, "A robust internal model-based fractional order controller for fractional order plus time delay processes", *IEEE Control Systems Letters*, vol. 4, no. 4, pp. 862–867, Oct. 2020. DOI: 10.1109/LCSYS.2020.2994606.
- [30] I. Birs, C. Muresan, I. Nascu, and C. Ionescu, "A survey of recent advances in fractional order control for time delay systems", *IEEE Access*, vol. 7, pp. 30951–30965, 2019. DOI: 10.1109/ACCESS.2019.2902567.
- [31] Y. Teng, H. Li, and F. Wu, "Design of distributed fractional order PID type dynamic matrix controller for large-scale process systems", *IEEE Access*, vol. 8, pp. 179754–179771, 2020. DOI: 10.1109/ACCESS.2020.3027597.
- [32] M. A. Louis, M. R. Roman, O. E. Mahmoud, and M. F. Sedrak, "Performance investigation and control parameters choice for sliding mode control of coupled tanks system", in *IOP Conf. Ser.: Mater. Sci. Eng.*, 2020, vol. 973. DOI: 10.1088/1757-899X/973/1/012044.



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