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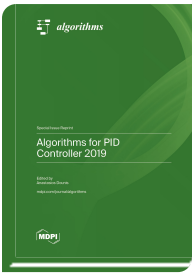
Special Issue Reprint

Algorithms for PID Controller 2019



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Edited by
Anastasios Dounis

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The reprint focuses on advanced PID controller-tuning algorithms in addition to conventional approaches based on mathematical controlled system analysis. Stavrov and al. proposed an improved version of a conventional PID controller based on a quadratic error model. De Moura Oliveira et al. proposed a PSO technique for PID controller design. Alimohammadi et al. introduced a multi-loop Model Reference Adaptive Control, leveraging a NARX model as the reference model, which was integrated with a Fractional Order PID. Alekseeva proposed a PD Steering Controller utilizing the predicted position on tracks for autonomous vehicles driven on slippery roads. A Neural PID controller for Unmanned Aerial Vehicles was presented by Avila et al., based on a Multilayer Perceptron trained with an Extended Kalman Filter. A study of six types of multi-loop model reference (ML-MR) control structures and design schemes for PID control loops is presented by Alagoz and al. Smeresky, Rizzo and Sands explore and analyze deterministic artificial intelligence composed of self-awareness statements along with a novel, optimal learning algorithm. Radac and Lala suggest a solution for the Output Reference Model tracking control problem, based on approximate dynamic programming and the Value Iteration (VI) algorithm for controller learning. A Kalman-Filter-Based tension control system for industrial Roll-to-Roll system is also presented by Hwang et al.

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