Special Issue on "Learning From Adaptive Control Under Relaxed Excitation Conditions"

The capacity to learn is one of the fundamental features of autonomous intelligent systems which is reflected by parameter convergence in adaptive control. Learning is desirable as it enhances overall stability and robustness properties of adaptive control systems, including superior trajectory tracking, accurate online modelling, and robustness against various perturbations. However, the classical PE condition that guarantees to learn from adaptive control is too stringent and usually infeasible in practice. Even when PE exists, the learning speed in adaptive control highly depends on the PE strength resulting in a generally slow learning process. The exploitation of online historical data provides a promising way to achieve learning from adaptive control without the classical PE condition and has attracted great attention in recent years, where typical emerging techniques in this topic include concurrent learning and composite learning. In these emerging learning techniques, online historical data are utilized to construct special prediction errors that are available from measurable system signals, and both prediction errors and tracking errors are employed to update parameter estimates such that learning can be achieved under weaker excitation conditions.

This special issue aims to provide state-of-the-art developments about learning from adaptive control, with a special focus on online historical data-driven adaptive control and parameter estimation as well as their applications to various real-world problems. However, other contributions that also aim to relax the classical PE condition for parameter convergence are also warmly welcome. Interested topics include but are not limited to:

✓ Composite learning for adaptive control and parameter estimation
✓ Concurrent learning for adaptive control and parameter estimation
✓ Learning from adaptive control under functional uncertainties
✓ Learning from adaptive control under time-varying uncertainties
✓ Learning from adaptive control under various perturbations
✓ Other learning techniques for parameter convergence without PE
✓ Real-world applications of all above emerging learning techniques

Authors are requested to submit their manuscript online at the journal submission website: https://mc.manuscriptcentral.com/acsp-wiley. When submitting, please choose manuscript type "Learning From Adaptive Control Under Relaxed Excitation Conditions" and answer "Yes" to the question "Is this submission for a Special Issue?" The schedule of the special issue is shown as follows, but submissions will follow the first-come first-review policy.

Time Table:

Deadline for first submissions: **31 Aug 2018**
Decision of first submissions: 31 Nov 2019
Deadline for second submissions: 30 Jan 2019
Final decision notification: 31 Mar 2019
Expected publication: Summer 2019

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