Abstract

The present paper deals with a decoupled multimodel predictive control based on multi-observer for the control of discrete-time nonlinear systems with time-varying delay. For each local model, a controller based on partial predictor/observer is synthesized. A switching algorithm is established to yield the adequate partial controller ensuring the closed-loop desired performances. Simulation results are given to illustrate the significance of the proposed decoupled multimodel predictive control strategy.

References

- Y. Batmani and H. Khaloozadeh. "On the design of observer for nonlinear
- O. Pags, C. Bernard, O. Raul, and M. Pascal. "Control system design by using
a multi-controller approach with a real-time experimentation for a robot wrist.\cite{Orjuela2002}.
- R. Orjuela, D. Maquin, and J. Ragot. \textquoteright{}nonlinear system identification using uncoupled state multiple-model approach\textquoteright{}. In 4th Workshop on Advanced Control and Diagnosis, ACD\textregistered{}06, Nancy, France, 2006.
- A. Savran. \textquoteright{}discrete state space modeling and control of nonlinear unknown systems\textquoteright{}. ISA Transactions, 52:795–806, 2013.

\textbf{Index Terms}

\begin{center}
\begin{tabular}{l}
Computer Science \\
Information Sciences
\end{tabular}
\end{center}

\textbf{Keywords}
\begin{center}
Predictive Control \hspace{1cm} Time-delay Systems \hspace{1cm} Multi-observer \hspace{1cm} Supervisor \hspace{1cm} Multimodel Approach
\end{center}