# Article information:

Proximate Fixed-Time Prescribed Performance Tracking Control of Uncertain Robot Manipulators | IEEE Journals & Magazine | IEEE Xplore
<https://ieeexplore.ieee.org/document/9531491>

# Article summary:

1. This article presents a novel proximate fixed-time prescribed performance trajectory tracking control for robot manipulators in the presence of bounded external disturbances and parametric uncertainties.

2. A sliding surface with the prescribed performance tracking errors is constructed and a nonsingular proximate fixed-time terminal sliding mode prescribed performance control (FTSMPPC) is developed.

3. The proposed FTSMPPC provides faster transient performance quantified and higher steady-state accuracy by the proposed PPF, which is validated by simulations and experiments.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Proximate Fixed-Time Prescribed Performance Tracking Control of Uncertain Robot Manipulators” provides an innovative approach to controlling robot manipulators in uncertain environments. The authors present a novel proximate fixed-time prescribed performance trajectory tracking control for robot manipulators in the presence of bounded external disturbances and parametric uncertainties, which is based on a sliding surface with the prescribed performance tracking errors and a nonsingular proximate fixed-time terminal sliding mode prescribed performance control (FTSMPPC). The authors claim that this approach provides faster transient performance quantified and higher steady-state accuracy by the proposed PPF, which is validated by simulations and experiments.

The article appears to be well researched, as it cites several relevant works from other authors in its introduction section. Furthermore, it provides detailed mathematical proofs for its claims, which adds to its credibility. However, there are some potential biases that should be noted when evaluating this article’s trustworthiness and reliability. For example, while the authors provide evidence for their claims through simulations and experiments, they do not provide any real world examples or applications of their proposed method to demonstrate its effectiveness in practical scenarios. Additionally, while they cite several relevant works from other authors in their introduction section, they do not explore any counterarguments or alternative approaches that could potentially be used instead of their own proposed method. Finally, while they discuss possible risks associated with their proposed method such as overshoot or convergence rate issues, they do not provide any solutions or strategies for mitigating these risks if they were to occur in practice.

In conclusion, while this article appears to be well researched and provides detailed mathematical proofs for its claims, there are some potential biases that should be noted when evaluating its trustworthiness and reliability such as lack of real world examples or applications of their proposed method to demonstrate its effectiveness in practical scenarios; lack of exploration into counterarguments or alternative approaches;

# Topics for further research:

* Robot Manipulator Control Strategies
* Real-World Robot Manipulator Applications
* Counterarguments to Proximate Fixed-Time Prescribed Performance Tracking Control
* Mitigation Strategies for Overshoot and Convergence Rate Issues
* Alternative Approaches to Robot Manipulator Control
* Robustness of Proximate Fixed-Time Prescribed Performance Tracking Control

# Report location:

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