# Article information:

An improved delay-dependent stability criterion for linear uncertain systems with multiple time-varying delays: International Journal of Control: Vol 87, No 4  
<https://www.tandfonline.com/doi/abs/10.1080/00207179.2013.861081?journalCode=tcon20>

# Article summary:

1. The article presents an improved delay-dependent stability criterion for linear uncertain systems with multiple time-varying delays.

2. The proposed criterion is based on a novel Lyapunov-Krasovskii functional and a less conservative integral inequality.

3. Numerical simulations demonstrate the effectiveness of the proposed criterion in comparison to existing methods.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article titled "An improved delay-dependent stability criterion for linear uncertain systems with multiple time-varying delays" published in the International Journal of Control by Fucheng Liao, Jiang Wu, and Masayoshi Tomizuka presents a new stability criterion for linear uncertain systems with multiple time-varying delays. The authors claim that their proposed criterion is more effective than existing ones and can be used to design robust controllers for such systems.

Overall, the article appears to be well-written and informative. The authors provide a clear introduction to the problem they are addressing and explain the significance of their research. They also present a detailed mathematical analysis of their proposed stability criterion and provide simulation results to demonstrate its effectiveness.

However, there are some potential biases and limitations in the article that should be noted. Firstly, the authors only consider linear uncertain systems with multiple time-varying delays, which may limit the applicability of their proposed criterion to other types of systems. Additionally, the authors do not explore any counterarguments or potential drawbacks of their approach, which could weaken their claims.

Furthermore, while the authors provide simulation results to support their claims, they do not provide any experimental evidence or real-world applications of their proposed criterion. This lack of empirical evidence could raise questions about the practicality and effectiveness of their approach in real-world scenarios.

Finally, it is worth noting that the article does not contain any promotional content or one-sided reporting. However, given that all three authors are affiliated with academic institutions, there may be some partiality towards academic approaches and perspectives.

In conclusion, while this article provides valuable insights into an important problem in control theory, readers should be aware of its potential biases and limitations. Further research is needed to validate the effectiveness of this proposed stability criterion in real-world applications beyond linear uncertain systems with multiple time-varying delays.

# Topics for further research:

* Robust control design for nonlinear systems with time-varying delays
* Limitations of delay-dependent stability criteria in control theory
* Real-world applications of stability criteria in control systems
* Comparison of delay-dependent and delay-independent stability criteria
* Experimental validation of stability criteria for uncertain systems
* Trade-offs between stability and performance in control system design

# Report location:

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