# Article information:

A Proof of the Spherically Symmetric Overbounding Theorem For Linear Systems - PULFORD - 2008 - NAVIGATION - Wiley Online Library  
<https://onlinelibrary.wiley.com/doi/10.1002/j.2161-4296.2008.tb00437.x>

# Article summary:

1. The article provides a rederivation of Rife and Gebre-Egziabher's recent paper on linear mappings of random variables from spherically symmetric probability distributions in the context of overbounding correlated ranging errors.

2. It presents an alternative statement of the spherically symmetric overbounding theorem in terms of the system matrices, and gives a precise definition of the filter impulse response coefficients and multi-dimensional convolution operation needed to ensure its validity.

3. Numerical simulations are provided to support the derived results.

# 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 is generally reliable and trustworthy, as it provides a detailed rederivation of Rife and Gebre-Egziabher's recent paper on linear mappings of random variables from spherically symmetric probability distributions in the context of overbounding correlated ranging errors. It also presents an alternative statement of the spherically symmetric overbounding theorem in terms of the system matrices, and gives a precise definition of the filter impulse response coefficients and multi-dimensional convolution operation needed to ensure its validity. Furthermore, numerical simulations are provided to support the derived results.

However, there are some potential biases that should be noted when considering this article. For example, it does not explore any counterarguments or present both sides equally; instead, it focuses solely on providing evidence for its own claims. Additionally, there is no mention of possible risks associated with using this theory for ensuring integrity in DGPS navigation systems; thus, readers should be aware that such risks may exist but have not been discussed here. Finally, while there is no promotional content present in this article, it could be argued that it is slightly one-sided in its presentation due to its focus on providing evidence for its own claims without exploring any counterarguments or presenting both sides equally.

# Topics for further research:

* Counterarguments to spherically symmetric overbounding theorem
* Risks associated with DGPS navigation systems
* Multi-dimensional convolution operation
* Filter impulse response coefficients
* System matrices in linear mappings
* Impact of correlated ranging errors

# Report location:

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