# Article information:

3D‐EPI blip‐up/down acquisition (BUDA) with CAIPI and joint Hankel structured low‐rank reconstruction for rapid distortion‐free high‐resolution T2\* mapping - Chen - Magnetic Resonance in Medicine - Wiley Online Library
<https://onlinelibrary.wiley.com/doi/10.1002/mrm.29578>

# Article summary:

1. EPI is a rapid encoding technique that has been used for quantitative MRI, but suffers from susceptibility-induced geometric distortions and voxel intensity pile-ups.

2. A novel 3D blip-up/down sequence with controlled aliasing in parallel imaging (CAIPI) strategy across shots is proposed for single- and multi-echo, multi-shot EPI acquisition.

3. A joint image reconstruction strategy is proposed to further correct phase errors, boost SNR, and improve the accuracy of BUDA-EPI reconstruction.

# 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 “3D‐EPI blip‐up/down acquisition (BUDA) with CAIPI and joint Hankel structured low‐rank reconstruction for rapid distortion‐free high‐resolution T2\* mapping” by Chen et al., published in Magnetic Resonance in Medicine, provides an overview of a novel 3D blip-up/down sequence with controlled aliasing in parallel imaging (CAIPI) strategy across shots for single- and multi-echo, multi-shot EPI acquisition. The authors also propose a joint image reconstruction strategy to further correct phase errors, boost SNR, and improve the accuracy of BUDA-EPI reconstruction.

The article appears to be reliable overall as it provides detailed information on the proposed methodologies as well as their potential applications in neuroscientific and clinical settings. The authors provide evidence to support their claims through references to previous work on similar topics such as hybrid space SENSE approach, FSL TOPUP, navigator based correction techniques etc., which adds credibility to the article. Furthermore, the authors have provided a comprehensive discussion on the advantages and limitations of their proposed method at the end of the paper which helps readers gain a better understanding of its potential applications.

However, there are some points that could be improved upon in order to make this article more trustworthy and reliable. For instance, while discussing possible risks associated with using this method or any other similar methods mentioned in the paper, there is no mention of any safety measures that can be taken or any precautions that should be followed while using them. Additionally, while discussing counterarguments against their proposed methodologies or any other related methods mentioned in the paper, there is no mention of any alternative approaches or solutions that could be used instead if needed. This could help readers gain a better understanding of all available options when considering different methods for MRI acquisitions or reconstructions.

In conclusion, this article provides an overview of a novel 3D blip-up/down sequence with controlled aliasing in parallel imaging (CAIPI) strategy across shots for single- and multi-echo, multi-shot EPI acquisition along with a joint image reconstruction strategy to further correct phase errors, boost SNR, and improve the accuracy of BUDA-EPI reconstruction. While it appears to be reliable overall due to its detailed information on these topics as well as its references to previous work on similar topics which adds credibility to it; however some points such as lack of discussion on safety measures or alternative approaches could be improved upon in order to make this article more trustworthy and reliable overall.

# Topics for further research:

* MRI safety measures
* Alternative MRI reconstruction methods
* Controlled aliasing in parallel imaging
* Joint image reconstruction strategies
* High-resolution T2\* mapping
* Navigator based correction techniques

# Report location:

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