# Article information:

RUN‐UP: Accelerated multishot diffusion‐weighted MRI reconstruction using an unrolled network with U‐Net as priors - Hu - 2021 - Magnetic Resonance in Medicine - Wiley Online Library
<https://onlinelibrary.wiley.com/doi/10.1002/mrm.28446>

# Article summary:

1. Diffusion-weighted MRI (DWI) is widely used in various clinical applications, such as stroke prediction and tumor detection.

2. Multishot DWI provides images with higher resolution and SNR with reduced off-resonance–induced distortion compared with single-shot imaging, but it is sensitive to bulk motion which leads to unpredictable phase in the acquired data.

3. RUN-UP is a method that utilizes an unrolled network with very deep CNNs (32-layer U-Nets) to achieve fast and high-quality multishot DWI 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 “RUN‐UP: Accelerated multishot diffusion‐weighted MRI reconstruction using an unrolled network with U‐Net as priors” by Hu et al. (2021) presents a novel approach for accelerating multishot diffusion‐weighted MRI reconstruction using an unrolled network with U‐Net as priors. The authors provide a comprehensive overview of the current state of the art in this field, including existing methods for solving the shot-to-shot phase variation problem, their limitations, and how their proposed method addresses these issues.

The article is generally reliable and trustworthy; however, there are some potential biases that should be noted. For example, the authors focus primarily on the advantages of their proposed method without providing much discussion of potential drawbacks or limitations. Additionally, they do not explore any counterarguments or alternative approaches that could be used to address the same issue. Furthermore, while they provide evidence for their claims in terms of results from experiments conducted on real datasets, they do not discuss any possible risks associated with their approach or its implications for clinical practice.

In conclusion, while this article provides a thorough overview of the current state of the art in multishot diffusion‐weighted MRI reconstruction and presents a promising new approach for addressing this issue, it should be read critically to ensure that all potential biases are taken into account before drawing any conclusions about its efficacy or applicability in clinical practice.

# Topics for further research:

* Diffusion-weighted MRI reconstruction limitations
* Alternative approaches for shot-to-shot phase variation
* Clinical implications of unrolled network with U-Net
* Risks associated with accelerated multishot MRI reconstruction
* Advantages and disadvantages of unrolled network with U-Net
* Clinical applications of multishot diffusion-weighted MRI reconstruction

# Report location:

<https://www.fullpicture.app/item/45034747cbf2adf08ace77f38f27722a>