Quarto Tech Paper: a Template for Writing Technical Papers

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ABSTRACT This paper is a template for writing technical papers with Quarto. It includes examples for figures, tables, citations, and appendices. The directory structure is inspired by best practices in Python projects. The data, code, dependencies, manuscript and supporting notebooks are organized to facilitate reproducibility and reuse.

Keywords: Template, Paper, Git, Quarto, Reproducibility

1 Introduction

Quarto is a scientific and technical publishing system, well suited for writing “computational” papers, i.e. papers that include data analysis, plots, and tables. Reference [1] for a tutorial article, while [2] is a full technical paper written in Quarto. Quarto supports multiple syntaxes for writing documents, and can render to multiple output formats from a single source, using different engines. For this template, the manuscript is written in Markdown, and render via Typst to PDF—this handled by Quarto. This is very modern workflow: **much easier and faster than LaTeX!**, while still producing consistent technical document.

Plots such Figure 1 are generated in **reproducible** Python notebooks. The workflow is reproducible because the data, code, and dependencies are part of the same Git project repository using best practices from data science. The Python dependencies are managed with uv another modern and fast tool, which install dependencies on the fly in isolated reproducible environment with one command. Markdown provides lean syntax for usual elements such Table 1 and Eq. (1) .

Table 1: Sensor parameters

Parameter	Symbol	Typ	Unit
Hall sensitivity	S_{H}	0.2	V/T
Effective nr. of bits	ENOB	12	-

The workflow fits very much inside powerful text editor like VS code, which has extensions for Quarto, Typst, and Jupyter notebooks. Recall that physical quantities with units should use a thin non-breaking space: 1 µT. In IEEE PDF, one need to use the math mode and/or the SI unit package to render the greek letters correctly.

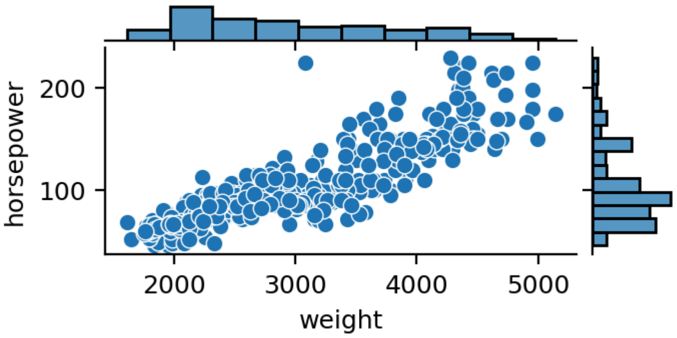

Figure 1: This figure was generated in a support notebook. Alternatively, it can be generated on-the-fly in the paper itself.

$$\nabla \times \mathbf{B} = \mu_0 \mathbf{J} + \mu_0 \varepsilon_0 \frac{\partial \mathbf{E}}{\partial t} \qquad (1)$$

References

[1] G. Close, “Technical Writing and Publishing Data-Rich Articles with Quarto,” Sep. 22, 2022. [Online]. Available: https://gael-close.github.io/posts/2209-tech-writing/2209-tech-writing.html

[2] B. Brajon, E. Gasparin, and G. Close, “A benchmark of integrated magnetometers and magnetic gradiometers,” *IEEE Access*, vol. 11, pp. 115635–115643, 2023, doi: 10.1109/ACCESS.2023.3325035.