

Lepton: An automaton for Literate Executable Papers

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Software

- [Review](#) ↗
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Summary

Source code is very hard to maintain when the documentation is missing. Recognizing this fact, D. Knuth (Knuth 1984) proposed the literate programming paradigm, i.e. that source code and documentation should be written at the same time, inside the same file, and in a format designed for human understanding.

“Lepton” adds documents such as data analysis reports and scientific papers to this vision. To enable reproducible research, “Lepton” makes it easy to include scripts or complete programs, compilation and execution instructions, as well as execution results in the same file. Offloading execution to “Lepton” makes the analysis operator-independent and easy to reproduce. In the spirit of literate programming, the plain text file format used by “Lepton” is intended to be human-understandable as opposed to machine-readable, and simple enough to be usable without the software.

“Lepton” consists in a standalone executable that processes plain text files written in a documentation format such as HTML or LaTeX with optional blocks that can contain files to be written to disk, source code or executable instructions. It is distributed in binary format (Li-Thiao-Té 2018) because its implementation is written as a “Lepton” file containing the full source code, manual and a tutorial. The public repository is hosted on [Github](#). Previous publications written using “Lepton” include (Li-Thiao-Té 2012b) and (Li-Thiao-Té 2012a).

References

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