Some Notes About Reversibility

Why Is Reversibility of Interest?

- It is connected to quantum computing,
- It may open the possibility of low-energy computers,
- It will simplify the development and proof of correctness of some programs,
- It opens new perspective theoretically.

Quantum Computing

Low-Energy Computers

Software-Engineering Benefits

Writing a proper file archiver (like 7-Zip, Ark or TAR) requires to:

- write a program to compress files into an archive,
- write a program to extract files from an archive,
- gain evidence that compressing then extracting files gives back the original files.

If that same program is written using a reversible programming language, then

- compressing means executing it forward,
- extracting means executing it backward,
- that compressing then extracting is the identity comes for free!

Another example is pandoc.

References