

Programming guidelines

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In my courses, I will typically ask you to do some programming or simulation using dedicated software. As more and more jobs require this type of skills and data-based techniques are developing fast, I strongly recommend you to acquire some experience in this field to maximize your “value” on the job market.

While I do not expect you to be proficient programmers, you should nevertheless follow some basic rules when writing source code, whether it is in Matlab or another language:

- First, all code should be heavily commented to (greatly) facilitate understanding what the algorithm does. In some cases, it is normal to have several lines of comments for a single line of code. Comments should also be added at the beginning of each function to describe its role, as well as list the inputs and outputs.
- Second, make code as generic as possible. For example, a power flow algorithm should work whether there are 3 or 20 buses or generators in the system. This implies primarily using vectors or matrices and loops in computations. As a general rule, the algorithm and the input data should be separated, and not imbricated.
- Third, use descriptive variable names, following conventions: use P for powers, I for currents, V for voltages, etc. Multiple indices may be added to variable names.
- Finally, if some portions of code are used repeatedly, create functions, or, alternatively, use loops. Functions can also be used to split long scripts into smaller parts.
- For other Matlab-specific guidelines, see [1].

References

- [1] R. Johnson, *MATLAB Style Guidelines 2.0*, 2014.
Available: <http://www.datatool.com/downloads/MatlabStyle2%20book.pdf>