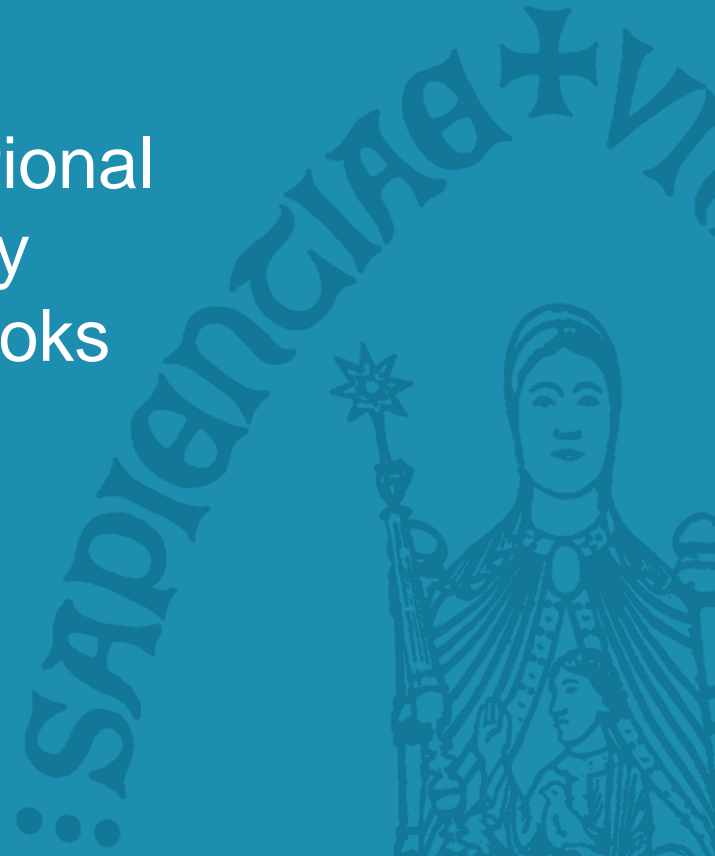# Reproducible research in computational sciences: A use case for uncertainty quantification using Jupyter notebooks

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Reproducible Research

- A crucial aspect of open science in recent years

- Core idea: the results of research should be reproducible given the original dataset, code, and software

- In computational sciences: "never believe anything unless you can run it"

Reproducibility in Computational Sciences

- Transparency increases the outreach

- Traditional way: making the developed
  models available as open-source codes

- Better approach: publishing the building
 blocks in a reproducible manner
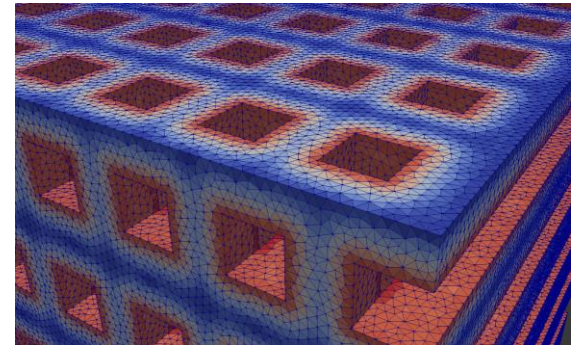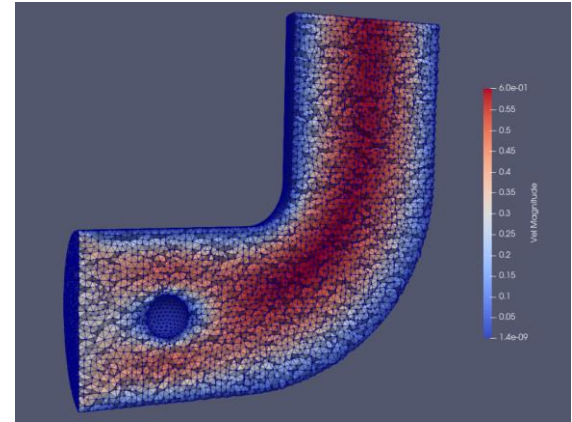
Jupyter Comes Into Play

- Providing a full representation of the work (building blocks) being enriched by extra descriptions

- Jupyter facilitates reproducibility by increasing transparency, especially for the people who are not deeply into the field

- Bonus: its interactive nature helps converting the reproducible research works into valuable educational materials

Use Case: Model Parameters Calibration

- A practical implementation of a parameter estimation process
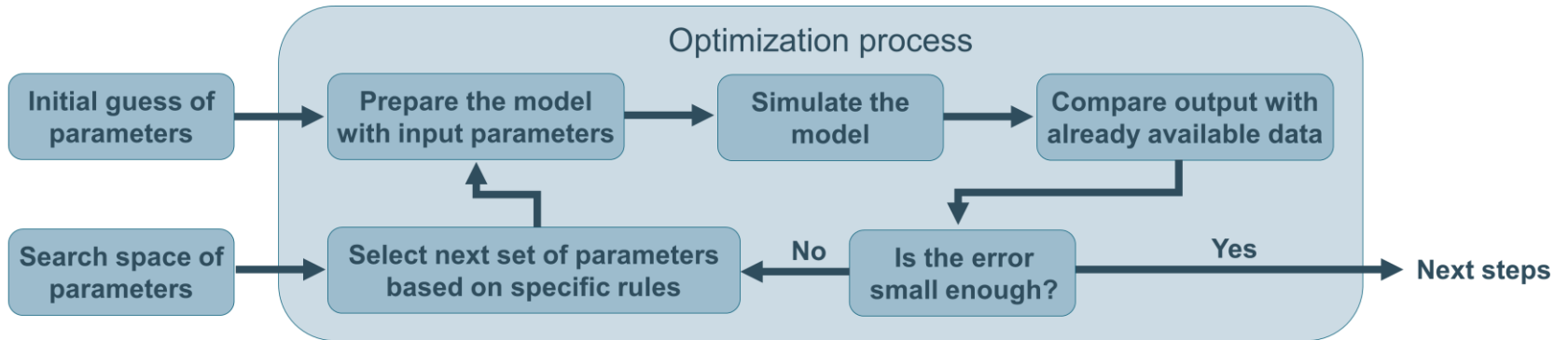
Use Case: Implementation

- Showing reproducibility in a unified environment for understanding, building, running, post-processing, and optimizing processes
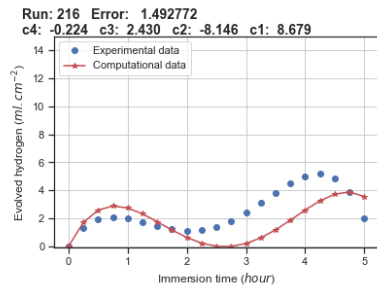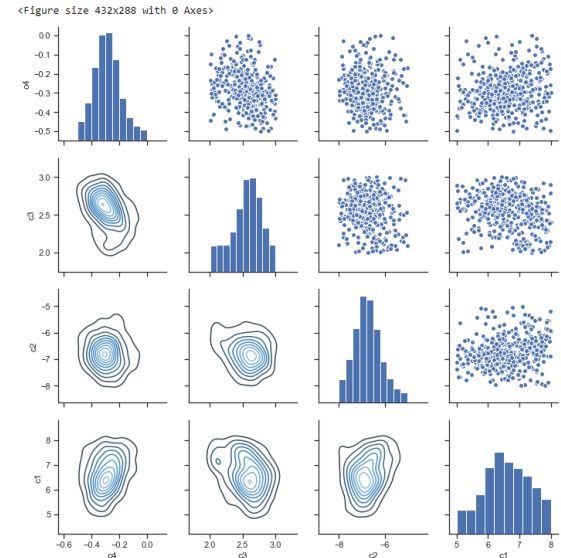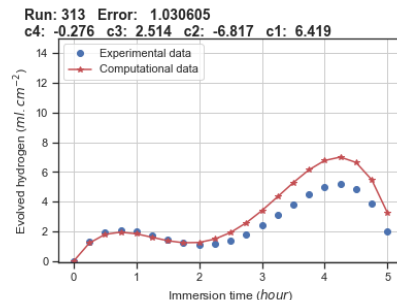
Conclusion

- Importance of reproducibility in computational research works

- The role that Jupyter plays in increasing transparency

- A use case for showing the proof-of-concept

Thank you for your attention!

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