

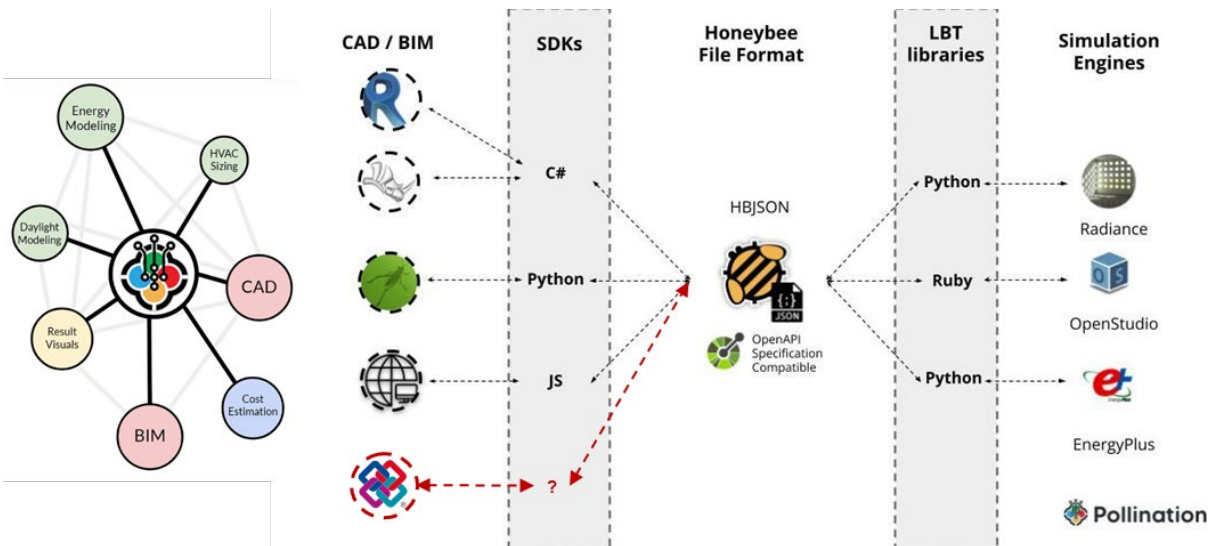
Modeling:	<div style="width: 100%; height: 10px; background-color: #005596;"></div>
Mathematics:	<div style="width: 100%; height: 10px; background-color: #005596;"></div>
Programming:	<div style="width: 100%; height: 10px; background-color: #005596;"></div>
Science:	<div style="width: 100%; height: 10px; background-color: #005596;"></div>

# Software Lab:

## IFC-HBJSON: Converting IFC for Environmental Building Simulation

### Description

Environmental Building simulation, such as energy, comfort or daylight modeling, reduce the building performance impacts in early design stages. Its expertise spans across many disciplines and software packages, making collaboration challenging. BIM and especially open formats, such as IFC, enable a multidisciplinary collaboration. Nevertheless, a translation between IFC and the input for multiple environmental building simulation tools, such as Pollination, is still an error-prone process and needs further steps in research and implementation.



### Task

The tasks expected from the students are;

- Research on existing (open-source) tools and approaches (IfcOpenShell, IFC.js, etc.)
- Understand the minimum classes/objects that need to be imported from an IFC file for energy simulation (HBJSON)
- Implement a translation from IFC to HBJSON
- Test and validate the implementation

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### References

[1] Mackey, Christopher; Sadeghipour Roudsari, Mostapha. "The Tool(s) vs. The Toolkit." In Proceedings of the Design Modeling Symposium. Paris, France, Aug 18-20 2017.

[2] <https://docs.pollination.cloud/user-manual>