Juan C. Ordonez

Mechanical Engineering

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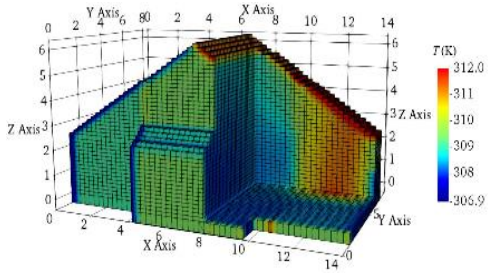

- **My Research Background:** Thermodynamics and Heat Transfer- Modeling and Optimization of Energy Systems
- **How I'd Like to be Involved in a Smart Cities Project:** Providing Thermal Models for Model Predictive Control Intelligent Systems & through the OGZEB as platform to test smart systems at residential level.

Facility - OGZEB

- Offers as a research, development, and testing site for building-related systems.
- Ability to retrofit to facilitate the testing of new devices and/or systems.
- Progression towards building science-related courses, major/minor, and/or department.

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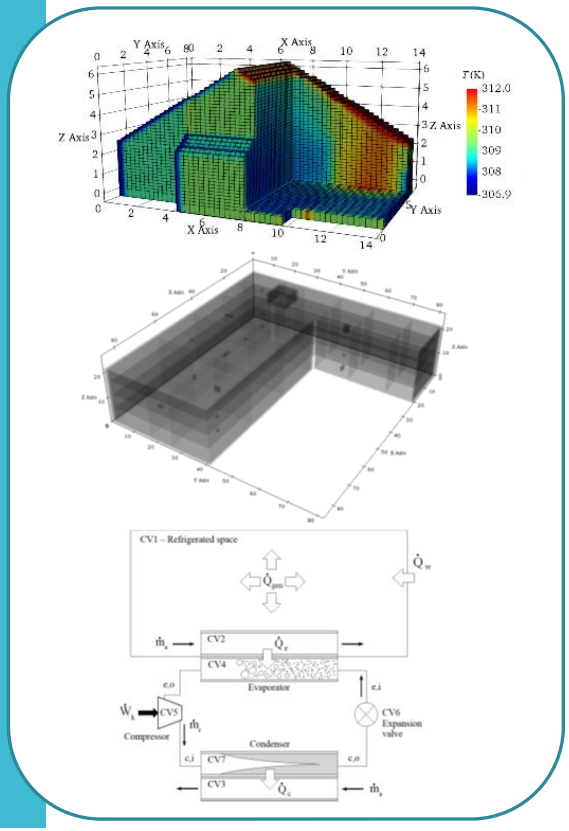

PRESENT

- Intermediate model – 3D, dynamic, and fast.
- Versatile – component-level –> system-level – HVAC, building, etc.
- Any building geometry can be imported.
- Experimentally validated.

FUTURE

- Model enhancement – lighting, incorporation of more building components, etc.
- Model calibration and validation.
- Uncertainty quantification and optimization.
- Adapt for urban-scale modeling and simulation by coupling with GIS.
- Online platform for real-time energy monitoring and simulation.