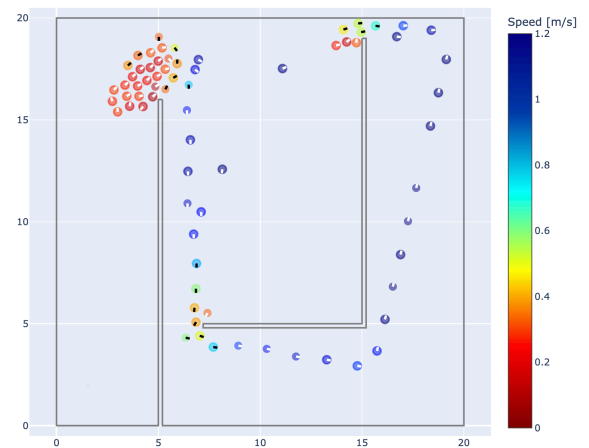


Development of a Scientific GUI for Simulation Workflow and Analysis using Python and JuPedSim

In the realm of scientific computing, the efficacy of simulation tools is often gated by the accessibility and usability of the software. This Master's thesis bridges this gap; it involves the translation of complex, scientific simulation concepts into a visual and interactive medium that enhances the accessibility and usability of simulation tools. The core components of this project include:



- **Reproducibility and Accessibility:** Creating a GUI that makes simulations more accessible to non-programmers, ensuring reproducible and transparent research outputs.
- **Simulation Parameterization:** Facilitating a user-friendly platform for the configuration of simulation parameters, enabling scientifically rigorous and customizable experiment setups.
- **System Visualization:** Designing intuitive visualization tools within the GUI for real-time and post-simulation analysis, providing clear insights into complex pedestrian dynamics.
- **Data Flow and Management:** Implementing a robust data architecture to manage the simulation input and output data, maintaining integrity throughout the simulation lifecycle.

By incorporating PedPy, the interface will extend its functionality to more intricate tasks such as setting up measurement areas and lines, crucial for evaluating the dynamics of pedestrian flows, thus substantially supporting the conceptual and analytical work of researchers and practitioners.

Candidates should possess solid Python knowledge. GUI design experience and familiarity with pedestrian simulation software are desirable but not mandatory.