

Pedestrian travel creates complex interactions. The VISSIM pedestrian simulation was designed to be flexible enough to handle complex situation, to make VISSIM suitable for a broad range of applications.

Scope of Application

► Traffic engineering and transportation planning

The influence that pedestrians have on vehicular traffic – particularly in special situations like complex intersections – can be realistically forecasted.

► City planning

In modern city planning, both citizens and planners are increasingly aware of the significance of pedestrians. VISSIM meets the needs for a planning tool for creating a pedestrian-friendly city.

► Evacuation

Fire safety engineers have different needs than traffic engineers. The most obvious is multi-story modeling, which is included in VISSIM.

► Animation

Communicating complex building or city construction plans to a non-professional public is important if the public is meant to actively take part in the discussion about development. In addition to assisting the process of engineering, planning and constructing, VISSIM also aims to help experts communicate their ideas and work to others.

VISSIM – Pedestrian Modeling



The Social Force Model

The Social Force Model by Helbing et al. was the first model for pedestrian simulation which generated wide public interest. It dates back to 1995 and was used in many projects. Since then, it has been enhanced a few times. A number of new changes were implemented for its very general use in VISSIM. Its general approach is flexible and it has recently been demonstrated that it can easily be extended to simulate extreme situations, such as the Hajj in Mecca.



Multi-modal traffic simulation with true interactions.

The Pedestrians

VISSIM is a microscopic simulation tool, meaning that all vehicles and pedestrians are simulated individually.

For example, each pedestrian has his or her individual desired walking speed, which is assigned to him or her by VISSIM via a user-defined speed distribution.

Pedestrians and Vehicles – an Interactive Relationship

VISSIM is the first multi-modal microscopic simulation program to include real interaction between pedestrians and vehicles. Traffic lights, pedestrian crossings, and normal parts of streets can all be modeled and simulated in VISSIM. For the first time, you can define road users who willingly infringe upon the traffic rules: pedestrians who do not obey red crossing signals are so common in parts of the real world that the VISSIM development followed customers' requests and included them in VISSIM.

Editing

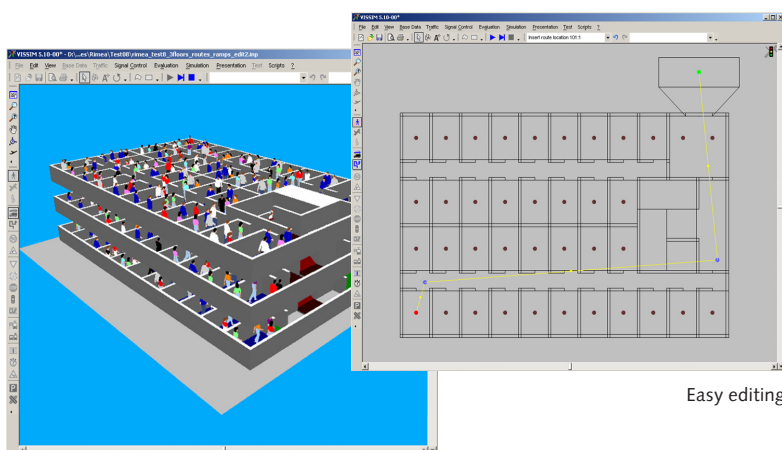
The editing process consists of three parts. First, define the population: group pedestrians into types, classes and compositions, and set their properties, such as walking speed, model parameters, color and 3d model. Next, define geometry using walking areas, obstacles, ramps, stairways, escalators, traffic lights and levels. Finally, add the inputs and routes of pedestrians to the geometry. VISSIM supports a number of image formats (among them jpg and dxf), which can be loaded as background images to assist in creating the geometry.

Evaluation / Measurement

Measurements can be included in the simulation at arbitrary positions. Properties to measure include travel time and lost time, density, speed, and flow. For each measurement, raw data can be measured and aggregation time intervals can be defined freely.

VISSIM Pedestrian Simulation – Your Advantages at a Glance

- ▶ **The Simulation Model**
VISSIM uses the Social Force Model by Helbing et al. It is a microscopic simulation model for pedestrian traffic.
- ▶ **Pedestrian-Vehicle Interaction**
All kinds of pedestrian-vehicle interaction – at traffic lights, pedestrian crossings, and unsignalized parts of streets – can be modeled and simulated.
- ▶ **Evaluation**
There are three types of evaluations:
 - Cross-sectional measurements
 - Travel time measurements
 - Area-based measurements
- ▶ **Area-based Walking Behavior**
Pedestrians can change their behavior (e.g. preferred speed) with respect to space and time.
- ▶ **Multi-story Modeling**
VISSIM supports the simulation of buildings with numerous stories and their connections.
- ▶ **Animation**
During simulation, the process can be followed by the user via a 2d and 3d animation as well as a LOS display following Fruin, Weidmann, or HBS.
- ▶ **Simulation Recording**
Simulations can be recorded directly as AVI video animations or as ANI data for later evaluation.
- ▶ **Background Import**
For editing support background images of various formats (e.g. bmp, dwg, dxf, ecw, jpg, png, shp, sid, tif, wmf) can be imported.
- ▶ **COM Support**
VISSIM's COM programming interface is supported by the new pedestrian simulation functionality.



Easy editing

Multi-story capable

Get in touch!

Please feel free to contact us with any questions at: info.vision@ptv.de

