Title:	***Automatic Generation of Wayfinding Schemes for Architectural and Other Layouts***
	UMB15-03
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Applications:
- Automates wayfinding design for architectural or engineering software
- Facilitates designing virtual environments in video games
- Useful to help create travel directions for real-world environments (e.g., shopping malls, airports, train stations, campuses)

Benefits:
- Generate optimized wayfinding schemes automatically considering human perception and movement behaviors
- Automation of architectural design software at minimal added cost

Technology Description: The invention provides a method of "wayfinding" in a virtual environment, i.e. a method for determining the optimal locations for placing directional signs to tell a user how to proceed in moving through the environment. The method relies on computer simulation and evaluation of different "wayfinding schemes" (i.e. different arrangements of directional signs) to determine the placement best able to achieve the shortest travel times to the desired destination. This method would be of particular value to architects or engineers designing homes or other buildings, and would also be applicable to designers of video games, to help determine how a user's avatar might need to move from room to room, and where placement of directional signs would be useful. The method can also be used for computer simulation of optimal travel paths in real-world situations.

Patent and Publication Status: UMass Boston has filed a U.S. utility patent application on this invention. The research underlying the invention has been published at H. Huang et al., "Automatic Optimization of Wayfinding Design," in IEEE Transactions on Visualization and Computer Graphics, vol. 24, no. 9, pp. 2516-2530, 1 Sept. 2018.
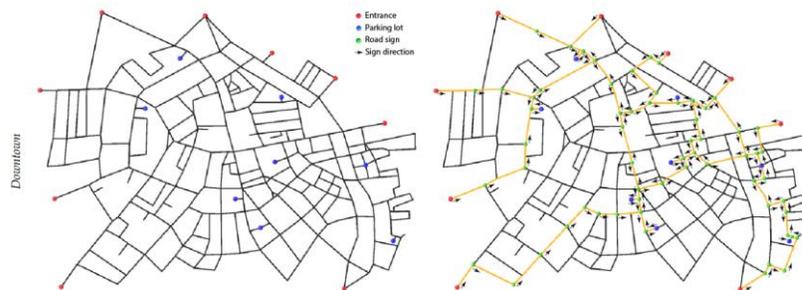
This method takes a city layout (left) as the input and automatically generates a scheme for placing wayfinding signs (right) through an optimization.

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