

Cyber-Urbanescape: Recent Advances, Challenges & Opportunities

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Peking University

Abstract:

One of the research challenges in cyber-physical systems is to model, capture, and visualize vibrant, dynamic scenes of real-world complexity, such as urban spaces. The problem of modeling and visualizing digital cityscapes offers a diverse set of opportunities for innovations and provides enabling technologies of societal interests, including energy use, transportation mechanisms, economic sustainability, education and entertainment. In this talk, I will survey some of recent efforts on addressing the problem of modeling, simulating, and directing virtual agents and complex traffic in dynamic environments. In particular, I will present several complementary approaches for representing, simulating, planning, analyzing, and reconstructing the movement of multiple virtual entities, including both crowds and traffic, in urban scenes and city highways. I will conclude by discussing our experiences and some future research directions.



Ming C. Lin is currently John R. & Louise S. Parker Distinguished Professor of Computer Science at the University of North Carolina (UNC), Chapel Hill and an honorary Chair Professor (Yangtze Scholar) at Tsinghua University in China. She obtained her B.S., M.S., and Ph.D. in Electrical Engineering and Computer Science from the University of California, Berkeley. She received several honors and awards, including the NSF Young Faculty Career Award in 1995, Beverly W. Long Distinguished Professorship 2007-2010, IEEE VGTC Virtual Reality Technical Achievement Award in 2010, and nine best paper awards at international conferences. She is a Fellow of ACM and IEEE. Her research interests include physically-based modeling, virtual environments, sound rendering, haptics, robotics, and geometric computing. She has (co-)authored more than 250 refereed publications in these areas and co-edited authored four books. She has served on over 130 program committees of leading conferences and cochaired dozens of international conferences and workshops. She is currently a member of IEEE Computer Society (CS) Board of Governors, the Chair of IEEE CS Transactions Operations Committee, and a member of Executive Committee of IEEE CS Publications Board. She is currently a member of IEEE Computer Society (CS) Board of Governors, the Chair of IEEE CS Transactions Operations Committee, and a member of Executive Committee of IEEE CS Publications Board. She is a former Editor-in-Chief of IEEE Transactions on Visualization and Computer Graphics (2011-2014), a member of several editorial boards, and a guest editor for over a dozen of scientific journals and technical magazines. She also has served on several steering committees and advisory boards of international conferences, as well as government and industrial technical advisory committees.