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The State University of New York at Buffalo

Buffalo, NY

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Developing Operations Research Software for Operations Researchers

Abstract: Operations research (OR) techniques have long been used to help industrial and military organizations operate more efficiently. This talk details two software tools we developed to help OR researchers themselves work more efficiently. First, VeRoViz (https://veroviz.org), an open-source vehicle routing (VR) visualization package, consists of both Python and web-based components. It streamlines the workflow for VR researchers by simplifying and automating many of the tedious tasks associated with generating realistic test problems. VeRoViz also produces customizable visualizations of complex VR problems - including Gantt charts, interactive maps, and dynamic 3D videos – which can assist researchers in validating models and communicating results. Second, tex2solver is an online tool that was originally conceived to translate LaTeX source code into solver code (e.g., Gurobi or AIMMS). However, now it is even possible to solve an integer programming problem directly from your phone by simply taking a picture of the problem. The tool is free to use at https://tex2solver.com.

Biography: Chase Murray is an assistant professor in the Department of Industrial and Systems Engineering at the State University of New York at Buffalo (SUNY). He is the director of the Structure for Outdoor Autonomy Research (SOAR), one of the largest enclosed drone testing facilities in the country. Murray received B.S. and M.E. degrees in Industrial Engineering from Texas A&M University; his Ph.D. is in Industrial & Systems Engineering from SUNY. He has expertise in operations research and systems integration, with a particular focus on the use of unmanned vehicles in logistics and surveillance applications. His research has been supported by the National Science Foundation, Office of Naval Research, DARPA, Federal Highway Administration, and the National Football League. Murray was previously an assistant professor at Auburn University, and worked as an industrial engineer at Intel and Dallas Semiconductor.