Mathematical Sciences
Center for Faculty Development[1]

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United States Military Academy, West Point NY

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Solving the Close-Enough Traveling Salesman Problem

ABSTRACT

The close-enough traveling salesman problem (CETSP) is a generalization of the traveling salesman problem where nodes are replaced by discs of nonzero radius. The CETSP has application in wireless sensor networks, aerial reconnaissance route planning, and in the transportation industry, among others. We develop a heuristic for solving the CETSP and compare its performance to a genetic algorithm. We then extend the result from its local-minimum neighborhood towards a near-optimal solution without a substantial increase in running time.

About the Speaker

William K. Mennell is finishing a PhD in Management Science at the University of Maryland, College Park, advised by Drs. Bruce Golden and Ed Wasil. He studied violin and organ at the Oberlin Conservatory of Music only to switch gears, graduate from Slippery Rock University with a degree in Computer Science, live in Moscow, Russia for three months, and spend a few years in the 82nd Airborne Division as an Infantry Platoon Leader. He served 8 months in Afghanistan in 2003 and 4 months in Iraq in 2004. William is happily married to Amanda C. Mennell, and they have a daughter and a son: Gracyn, 2 ½, and Aedyn, 9 months. Mr. Mennell is interested in almost everything, but his research interests focus primarily on heuristic and exact methods for combinatorial optimization problems. This work was developed by the presenter and Bruce Golden, of the Robert H. Smith School of Business, University of Maryland, and Edward Wasil, of the Kogod School of Business, American University.

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