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Weathering the Chikungunya Storm: Arbovirus Risk in Texas

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The mosquito-borne diseases of greatest interest in the state of Texas are West Nile Virus, Dengue fever, and most recently Chikungunya virus. Texas state officials are particularly worried about possible endemic establishment of Chikungunya in Texas. In this presentation, we discuss the history of Chikungunya virus, as well as methods to map the risk of the virus throughout the state of Texas. Using data of mosquito occurrence, environmental, and socio-economic factors, we construct risk models for both import risk and disease sustainment risk. We select well performing models from millions of possibilities using historical Texas data. The final model is in use by Texas health officials.

Dr. Dimitrov is an Assistant Professor in the Graduate Program in Operations Research & Industrial Engineering at the University of Texas at Austin. Prior to joining UT, he was an Assistant Professor in the Operations Research Department at the Naval Postgraduate School in Monterey, California. He received a Ph.D. in Theoretical Computer Science from the University of Texas at Austin (2008) and B.S. degrees in Mathematics and Computer Science from the University of Michigan, Ann Arbor (2002). He teaches courses in Computational Optimization, Network Flows and Graphs, Operations Management, Stochastic Combinatorial Optimization, and Statistics. His research focus is on optimization, with applications in infectious disease control and national security.

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