Department of Geography
Geographical Information Science Research Seminar

Generalizing and Enhancing Geographic Structure for Cartographic Visualization, or, "Seeing a Pattern Here"

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Monday January 22nd, 2018
10:30 a.m. to 12:00 p.m.
Burnside Hall, Room 426

Abstract: This talk presents my past, present, and near future research, throughout all of which runs the common theme of automatically detecting and characterizing landscape pattern for visualization by cartographic generalization. The work is important in the context of the very large geospatial data sets we work with (i.e., "Big Data"), which are themselves highly varied in theme and format. I present a suite of original algorithms, each of which is a product of multidisciplinary synthesis between GIS, computer vision, and creative design: resolution-based line simplification; land cover enhancement and abstraction; DEM segmentation analysis for landform detection; pixel entropy-based locally-adaptive DEM smoothing; and automatic flow mapping. I follow with ongoing work in porting generalized cartographic representations into augmented reality (AR). The talk concludes with brief speculations on how I can contribute to the robust GIScience research program and curriculum at McGill Geography.

Bio: Paulo Raposo is an assistant professor of Geographic Information Science at the University of Tennessee, Knoxville. He holds a Ph.D (2016) and Masters (2011) in Geography, from the Pennsylvania State University, specialization in Cartography. His research interests are mainly in map generalization and multiple representation, cartographic design, geometry, and GIS programming. Dr. Raposo’s current projects include work on digital elevation model (DEM) generalization and terrain analysis, flow map generation, and augmented reality cartography.