

Topology, Algebraic Geometry, & Dynamics Seminar

How self-driving robots find delivery paths, and how this leads to sub-Riemannian geometry

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We will start by talking about the computational geometry side of the development of self-driving vehicles, namely the task of planning a (shortest) path between two given points in a complex environment. While graph-theoretic approaches work in some settings, we will see that the problem quickly turns into the task of finding geodesics on manifolds with locally-Euclidean geometry, or in more complicated cases with (sub-)Riemannian or (sub-)Finsler geometry. Properties of these geodesics remain an area of active theoretical research, and I will mention some recent results in this direction.

Date: **Friday, February 8, 2019**

Time: **2:30-3:20 pm**

Place: **4106 Exploratory Hall**

For special accommodations, please contact Sean Lawton via email at slawton3@gmu.edu.