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Bernd Sturmfels, Paul Breiding and **Sara Kalisnik*** (skalisnikver@wesleyan.edu), 265 Church Street, Middletown, CT 06459, and **Madeleine Weinstein**. *Learning Algebraic Varieties from Samples*.

I will discuss how to determine a real algebraic variety from a fixed finite sample of points and what to do with that information. For example, from the equations defining a variety one can learn the degree and the dimension of the variety. One can also construct ellipsoid complexes which, based on the experiments, strengthen the topological signal for persistent homology. All the algorithms needed are made available in a Julia package. (Received September 24, 2018)