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**Riley A Juenemann\*** (rjuene@stanford.edu) and **Scott A McKinley**. *A first-pass statistical dashboard for categorizing particle movement patterns*. Preliminary report.

At the intersection of nanoscience and biology lies the question of precisely how particles move within cells. Continuing developments in cellular imaging have made it possible for researchers to peek inside living cells, tracking individual particles over significant timescales. The use of mathematical models has allowed for better descriptions of distinct movement patterns and provided quantitative methods to differentiate among them. In this work, we have developed a first-pass dashboard that performs statistical feature extraction on the trajectories and predicts movement types based upon a supervised machine learning algorithm. For this task, we have trained a support vector machine with data simulated from a wide range of parameters to include many different biological contexts. Our methods can distinguish among trajectories that are well-described by free diffusion, anchored diffusion, active transport, and subdiffusion. We have published this dashboard and the associated analytical tools as an R Shiny web application. (Received September 19, 2021)