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Kevin Flores* (kbflores@ncsu.edu), Department of Mathematics, North Carolina State University, Raleigh, NC 27695. *Equation learning for partial differential equation models of biological transport.*

The use of partial differential equation (PDE) models for biological transport has seen widespread use in describing ecological, biomedical, and developmental processes. In this talk we review recent progress in learning PDE models directly from spatiotemporal data, focusing on specific challenges encountered in biology such as high noise levels and limited time samples. The main application we will discuss is learning models that describe collective cell migration from time-lapse microscopy data. Specifically, we used equation learning to derive a new PDE with a structure similar to the nonlinear Fisher-KPP equation, and that is also more accurate than previously used models for describing cell migration data. (Received September 15, 2020)