BRIAN CRUTCHLEY and QING WANG, Dept. of Computer Sciences, Mathematics and Engineering, Shepherd University, Shepherdstown, WV, 25443. Developing Software to Automate the Parameter Calibration of a Cancer Model.

In order to enhance predictive power of mathematical models to represent real world scenarios, one often needs to calibrate the model parameters to experimental data. When dealing with an ODE model, it can be difficult to find the optimal set of parameters that generates a curve fitting real world data. To make this process easier, we developed software to help automate the search for the best fitting set of parameters. To determine fitness, we compared the curves generated with a given set of parameters to the experimental data points and ranked each set of parameters by the percentage difference to the real-world data. The result was software that could sort through thousands of solutions and determine the best fitting curves, allowing easier parameter calibration of the model used.