

David Isaacson's research projects for undergraduate students:

Mathematics applied to the diagnosis and treatment of disease.

1. Problems in the development and numerical testing of medical imaging algorithms. Problems in the analysis of data from breast cancer patients. The mathematical areas that arise in these contexts may include partial differential equations, inverse problems, and numerical analysis.

2. Mathematical problems arising in the treatment of breast cancer. Problems involve the development and numerically testing of models governing cell proliferation as well as problems arising in the design of chemotherapeutic treatment regimens. The mathematical areas that arise in these contexts may include differential equations, dynamical systems, and cellular automata.