Thiab Taha

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Research Interest:

1. Computational science and Parallel Computing

i. Deriving numerical methods for solving problems in Science and Engineering

Examples: a) Problems that model optical fiber communication systems, such as NLS and CNLS equations.

b) Problems that model water waves and waves in plasma physics, etc.

2. Building software packages for simulation of optical fiber communication systems: from graphical user interface to numerical simulations and design.

3. Biochemical reaction networks: I am involved in a project called: "Computing Life" with B. Schuttler (Physics), J. Arnold(Genetics) and some Graduate students from our Department. Our role is to a) solve the system of differential equations that model biochemical reaction networks by using efficient numerical methods and

b) develop parallel algorithms to speed up the computations.

c) develop a web based Graphical User Interface for numerical simulations.

The challenge is to speedup the computation.
One method is to find the most efficient sequential solver for the system.
Another method is to develop a parallel algorithm to speed up the computation.

3. Symbolic Computations for deriving numerical methods for nonlinear evolution equations.

Fall offering: CSCI 8140:

Parallel Processing and Computational Science