



Supercomputer
Computations
Research Institute

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Review Committee
National Science Scholarship Program

Dear Committee Members:

I am writing to recommend Lester Hightower for a scholarship from the National Science Scholarship Program. I am an Associate Professor of Economics with a joint appointment at the Supercomputer Computations Research Institute (SCRI) at Florida State University. During the past academic year I have been Les' "Science Mentor"—a program established at SCRI to advise talented high school students on scientific projects and to encourage them to pursue scientific careers.

Les has been working on a fascinating and extremely useful project. He has modeled direct current railroad track circuits in an attempt to find optimal settings for the adjustable resistors associated with the signaling system which informs the dispatcher of the location of the train. The model takes into account track temperature, rainfall and ballast leakage due to dirt on the rails and cross ties. This model is already as sophisticated as most college engineering students would construct. The second phase of Les' project was to assemble many track circuits together into one large track section and to carry out Monte Carlo simulations of signal switch failures under various parameterizations of the resistor settings. Les developed the Monte Carlo code on his own and has already run test cases on his PC. The full runs will require the high-end workstations and supercomputers here at SCRI. I am very impressed with Les' model, which he has developed and coded almost entirely on his own. He has paid attention to many details that most modelers would tend to overlook and he has been very thorough about checking his results with known data. Les is highly motivated, mature and he is a very friendly person. I have no doubt that Les will be a top student in any electrical engineering program.

Sincerely,

Paul M. Beaumont
Assoc. Prof. of Economics