Rice University

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To: Rice Undergraduate S/E Students
From: Professor David W. Scott, Director, RIMS
Re: Invitation to Apply to
Summer Research Experiences Program

The third year of a Department of Defense-sponsored summer research program is set for May 18 — August 7, 1998, on campus in Duncan Hall. (The week before July 4 will be off.) This continuing project provides research experience and opportunities for undergraduate and graduate students in several areas of the Mathematical Sciences. Approximately ten–fifteen undergraduates will be invited to participate this summer and will be fully funded. (About half as many graduate students will participate.) Any interested student is encouraged to apply. A diversity of interests and backgrounds is hoped for. The contract requires U.S. citizenship for participants receiving support. Permanent resident status is also acceptable.

The theme this summer is **"Statistical Function Estimation, Image Understanding, and Optimization."** This general theme is meant to offer the possibility of including research in topics such as prediction and group identification, clustering, neural nets, density estimation, pattern recognition, image analysis, dimension reduction, linear programming methods for regression, and related optimization problems. DOD-provided problems will be considered during the summer. These will be unclassified, of course.

Participants need not have any particular background in statistics, although some familiarity with ideas of probability and data manipulations will be helpful. Advanced work in mathematical sciences and related disciplines in science and engineering is desirable. A willingness to learn fundamentals in these topics and participate in lecturers, colloquia, computer experiments, and research projects is all that is required. Participants will have the latest in computer graphics equipment from Silicon Graphics and Sun available, and ample time for group and independent research work.

Undergraduates selected will be awarded a stipend of at least $3,080 plus a possible scientific trip in August. Participants will be selected beginning in late February until all slots have been filled. In addition, books and materials will be furnished.

The program will be reasonably structured on a weekly basis, to include at least two hourly morning lectures per day, with regular colloquia presented by various RIMS faculty, visiting faculty, and DoD sponsors. Basic research results, research experiences, new collaborations, programming, data analysis, and html/java files will be desired outcomes. The actual period for lecturing is expected to cover a 2.5 month period from May 18 to August 7. The week of June 29 will be off for the Fourth of July holiday.

The steering committee of the RIMS project includes:

David W. Scott, Statistics, Director
Richard A. Tapia, CAAM
John C. Polking, Mathematics
Don H. Johnson, Electrical Engineering
Linda M. Torczon, Computer Science/CRPC

The following faculty will lead the 1997 RIMS program:

David Scott – Department of Statistics, Rice University
Dennis Cox – Department of Statistics, Rice
Keith Baggerly – Department of Statistics, Rice

Short-term visitors (one or two weeks) include:

George Terrell – Virginia Polytechnic Institute
Michael Trosset – University of Arizona/Rice/Consultant
Stephen Sain – Southern Methodist University
John Elder – Consultant, Virginia
Javier Rojo – University of Texas at El Paso
Others, TBN

The project owns several remotely sensed images. These data can be used to attempt to predict surface vegetation types in the Big Thicket. A wide range of other data and problems will be available.

If you are interested, please return the enclosed application. If you have any questions, please call the RIMS Director, Professor Scott (527-6037, scottdw@rice.edu. Participants will be interviewed by Dr. Scott. We believe you will find this program an enjoyable and intellectually stimulating experience. We invite you to apply.

Sincerely yours,

David W. Scott
Professor