**Parallel Algorithms for Real Time Signal Processing**

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A study was made of the emerging research area of algorithmic fault tolerance. This topic is attracting lots of attention due to its low implementation overhead and to its suitability for multiprocessor arrays. A fundamental contribution was made in the area by providing a novel linear algebraic model for the technique. In addition, a new fault tolerance scheme was developed for recursive least squares minimization. Other results include new ways for generating weights for the checksum method.
FINAL TECHNICAL REPORT
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8. SCIENTIFIC PERSONNEL SUPPORTED BY THIS PROJECT AND DEGREES AWARDED DURING THIS REPORTING PERIOD:

This project supported one student, Cynthia J. Anfinson.

Students supervised by Professor Luk:


BRIEF OUTLINE OF RESEARCH FINDINGS

We studied the emerging research area of algorithmic fault tolerance. This topic is attracting lots of attention due to its low implementation overhead and to its suitability for VLSI multiprocessor arrays. We have made a fundamental contribution in the area by providing a novel linear algebraic model for the technique. In addition, we developed a new fault tolerance scheme for recursive least squares minimization. Our other results include new ways for generating weights for the checksum method.

FINAL REMARKS

When I wrote the proposal five years ago, I said that I would use the fellowship to support a female or a minority. After I won the fellowship, I used it to attract a first year PhD student, Cynthia Anfinson, to work with me. The student just graduated from the University of California at San Diego, and was recommended by two well known numerical analysts as the best student whom they have taught in their careers. Anfinson turned out to be a very productive student, as evidenced by our two joint journal publications and five joint conference papers. It is unfortunate that, due to an unexpected pregnancy, she decided to leave Cornell so as to raise a family in San Diego.