



CWSF 2006 - Saguenay, Québec



Malcolm Stagg

A Dynamic Analog Concurrently-Processed Adaptive Chip

Division: Health Sciences

Category: Senior

Region: Calgary Youth City: Calgary, AB

School: Alberta Distance Learning Center

Abstract: The purpose of this project is to design a neural network chip to improve

existing designs, which have poor reconfigurability and learning accuracy. A general-purpose analog design is made for the TSMC 0.35um CMOS process. Enabling multiple learning-algorithms and arbitrary routing, advanced learning-algorithms are implemented. Analog neuron circuit simulations were accurate with 5um matched transistors. Advanced learning algorithms improved density without reducing performance.

Awards	Value
The University of Western Ontario Scholarship	\$1 500
Silver Medallist - \$1500 Entrance Scholarship	
Sponsor: University of Western Ontario	
The University of Western Ontario Scholarship	\$1 000
Bronze Medallist - \$1000 Entrance Scholarship	
Sponsor: University of Western Ontario	
Bronze Medal - Automotive - Senior	\$300
Sponsor: AUTO21	
Silver Medal - Engineering - Senior	\$700
Sponsor: Youth Science Foundation Canada	
Total	\$3 500



