

THE MATHEMATICS DEPARTMENT PRESENTS

# A MATHEMATICS COLLOQUIUM

THURSDAY, February 5, 2009

BOND HALL 217

4:00 pm

Title: **Algorithms for Handwritten Digit Recognition**

Speaker: **Michael Mazack**, Western Washington University

Abstract:

Imagine you have been hired by the postal service to sort letters based upon postal codes. Considering the high volume of mail processed every day, how does one sort all those zip codes without going postal? The answer: have a computer do it for you. Our problem is to automatically identify 16x16-pixel grayscale images of handwritten digits. In this talk I will discuss two possible algorithms. The first algorithm is based upon amazing properties of the singular value decomposition and linear least squares, while the second is based upon transformations and the minimization of tangent distances. The talk is accessible to anybody with some knowledge of linear least squares.

Refreshments will precede the talk at 3:30pm in Bond Hall 300  
courtesy of Dr. Tjalling Ypma