Applied Mathematics Seminar

Prof. David Austin, GVSU

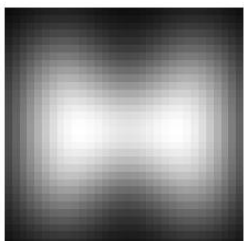
Friday, Dec 3   1-1:50pm

Join us [Via Zoom](#)   Password: email ortizron at gvsu dot edu to obtain it!

Deblurring images: I can see clearly now

Abstract: When the Hubble Space Telescope was launched in 1990, the first images returned were blurry and showed that the primary mirror had been ground to the wrong shape. While NASA planned their eventual brilliant and daring rescue mission, mathematicians devised several techniques for deblurring the images to increase their quality. We'll describe one of those techniques in this talk and see how it's related to what has become a standard technique in data science.

As we'll discover, the blurring process can be described by matrix multiplication. If **x** is the true image, then the blurred image is formed as $A\mathbf{x} = \mathbf{b}$ for some matrix A. So, if we have the blurred image **b** we just need to solve $A\mathbf{x} = \mathbf{b}$ to recover the true image, right? Well, it's not quite so simple for an interesting reason involving some simple linear algebra that we'll explore. We'll eventually learn about the regularization technique that forms the basis of ridge regression in data science.

This talk should be accessible to any students in MTH 204. If you attend, we'll uncover the true image lurking in the blurred version below.

More info: http://bit.ly/applied-math-seminar