

# Digital Signal Processing

JONATHAN S. DOE\*

University of Technology, Delft  
frits@howtoTeX.com

## Abstract

*This experiment explored the benefits and parameter space of digital signal processing. A high-purity germanium detector was coupled simultaneously to both a digital and analog data-acquisition system. The parameters were optimized for both configurations. For the analog system, the shaping time was corrected to find a minimum of full width half maximum (FWHM) of a 59.54KeV  $^{241}\text{Am}$   $\gamma$  line. For the digital system, the discrete convolution developed by jordanov[1] as a trapezoidal shaping filter was interpreted using linear algebra methods, the fano factor was derived, and the shaping time and gap time were optimized using a combination of  $\gamma$  lines from  $^{241}\text{Am}$  and  $^{60}\text{Co}$*

## I. INTRODUCTION

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## II. ANOTHER SECTION

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## III. ONE MORE SECTION

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