LaTeX Introduction

Mahmoud Ahmed
Arizona State University
Tempe, Arizona
meahmed@asu.edu

Abstract

This paper introduces myself and my academic background using the CVPR format. Rather than presenting a research topic, we are to discuss various aspects of my academic background and career objectives. This paper also demonstrates how the structure of a conference paper can be adapted for personal storytelling in an acedemic setting.

1. Introduction

My name is Mahmoud Ahmed, and I am a computer science major at Arizona State University. My expertise spans both the theoretical and practical aspects of computer science. On the theoretical side, I have studied topics such as compiler construction, operating systems, data structures, and algorithms. On the practical side, I am experienced in programming with low-level languages such as C, as well as high-level languages such as Python, Javascript, and Java.

In addition to computer science, I possess a strong foundation in mathematics, including differential equations, linear algebra, and probability and statistics.

My current understanding of image analysis is still developing, and so far it has been limited to basic exposure to how image data is represented and manipulated. Nevertheless, I have always found it fascinating to explore how cutting-edge deep learning techniques can be applied to imaging, particularly in the context of medical diagnostics and healthcare.

1.1. Career objectives

y career objective is to pursue research at the highest level and eventually become a doctoral student, with a particular focus on the fields of cryptography and statistical machine learning.

My interest in the aforementioned fields is driven not only by their practical impact in the real world but also by their mathematical elegance and theoretical depth. I am particularly inspired by their potential to improve human lives, especially in applications such as computer vision and healthcare, where dvanced algorithms can support diagnostics, treatment, and overall wellbeing.

1.2. Image processing demonstration

For this demonstration, I processed a personal photograph using a standard camera, and a processed version of the same photo.

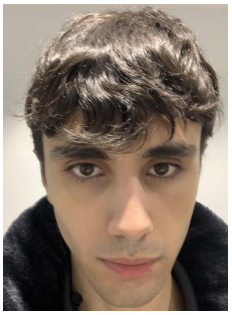

Figure 1. Original image.

Figure 2. Processed image after binary thresholding.

The processed image was generated using a binary thresholding scheme [1] . In this approach, a threshold value is selected such that each pixel with an intensity above the threshold is assigned the maximum pixel value in the image, while all other pixels are set to zero. This operation

converts the grayscale image into a binary image.

$$\texttt{dst}(x, y) = \begin{cases} \texttt{maxval}, & \text{if } \texttt{src}(x, y) > \texttt{thresh} \\ 0, & \text{otherwise} \end{cases}$$

where $\texttt{src}(x, y)$ is the intensity of the original image at pixel (x, y), $\texttt{thresh}$ is the threshold value chosen, and $\texttt{maxval}$ is the maximum pixel value assigned to pixels above the threshold.

The effect of this operation is to highlight bright regions of the image while suppressing darker regions, effectively converting the grayscale image into a binary image.

1.3. References

References

[1] OpenCV, "OpenCV: Image Thresholding," Available: https://docs.opencv.org/4.x/d7/d4d/tutorial_py_thresholding.html [Accessed: Aug. 26, 2025].