

## Documents

Hernández Díaz, N.<sup>a</sup>, Peñalosa, Y.C.<sup>b</sup>, Ríos, Y.Y.<sup>a</sup>, Magre Colorado, L.A.<sup>a</sup>

### **Software to Assist Visually Impaired People During the Craps Game Using Machine Learning on Python Platform**

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<sup>a</sup> Universidad Tecnológica de Bolívar, Parque Industrial y Tecnológico Carlos Vélez Pombo, Km 1 Vía Turbaco, Cartagena de Indias, Colombia

<sup>b</sup> Universidad de Pamplona, Ciudadela Universitaria, Km 1 Vía Bucaramanga, Pamplona, Colombia

#### **Abstract**

Pattern recognition is a prominent area of research in computer vision, where different methods have been proposed in the last 50 years. This work presents the development of a Python API to identify the result of two six-sided dice used in the game called “Craps” as a no-controlled environment to help visually impaired people. The software is structured in four stages. The first one is capturing images through a device with a digital camera connected to the web via IP address. The second stage corresponds to the captured image processing; it is necessary to establish a standard image size and resize and equalize the digitized image. The third stage seeks to segment the object of study by artificial vision techniques to identify the result of the dice after being thrown. Finally, the fourth stage is to interpret the result and play it through a speaker. The expected possible result is a system that integrates the four stages mentioned above through an intuitive and accessible low-cost Python API, mainly aimed at visually impaired people. © 2022, Springer Nature Switzerland AG.

#### **Index Keywords**

Computer software, Computer vision, High level languages, Machine learning, Vision; Artificial vision technique, Controlled environment, Crap game, Digitized images, Images processing, Machine-learning, Non controlled environment, Python API, Standard images, Visually impaired people; Python

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