Elaf A. Saeed, Ammar D. Jasim, Munther A. Abdul Malik

Lecturer at Al-Nahrain University / Information Engineering College, Iraq

Create distinctive databases of ancient languages and using a computer vision model to accurately recognize and classify them

Cuneiform writing, an old art style, allows us to see into the past. Aside from Egyptian hieroglyphs, the cuneiform script is one of the oldest writing systems. It emerged in the second half of the fourth millennium BC. Most people believe that the Sumerians created it in southern Mesopotamia. Many historians place the Hebrews' origins in antiquity. For example, we used the same approach to decipher the cuneiform languages; after learning how to decipher one old language, we would visit an archaeologist to learn how to decipher any other ancient language. We propose a deep-learning-based sign detector method to speed up this procedure to identify and group cuneiform tablet images according to Hebrew letter content. The Hebrew alphabet is notoriously difficult and costly to gather the training data needed for deep learning, which entails enclosing Hebrew characters in boxes. We solve this problem by using preexisting transliterations and a sign-by-sign representation of the tablet's content in Latin characters. We recommend one of the supervised approaches because these do not include sign localization. We find the transliteration signs in the tablet photographs by comparing them to their corresponding transliterations. Then, retrain the sign detector using these localized signs instead of utilizing annotations. Afterward, a more effective sign detector enhances the alignment quality. Consequently, this research aims to use the Yolov8 object identification pretraining model to identify Hebrew characters and categorize the cuneiform tablets. Images illustrating Hebrew passages have been culled from a Hebrew-language book. This book is known as the Old Testament, and it was organized into around 500 illustrations to aid in reading and pronouncing the characters. Another ancient document was recently discovered in Iraq, dating back to 500. It reached over a thousand photos after pre-processing and augmentation. The Cuneiform Digital Library Initiative (CDLI) website and the Iraqi Museum have compiled photographs of cuneiform tablets, with over a thousand photos available in each language.

Biography

Elaf A. Saeed, serves as a systems and control engineer at the University of Al-Nahrain, College of Information Engineering, in Iraq. Her expertise spans control, Embedded Systems, Artificial Intelligence, and IoT. Recognized for her programming talent, Elaf has authored eleven books published by Lambert Academic. Distinguished as the top student throughout her B.Sc. studies, she also brings four years of teaching experience to her role. She completed her master's degree in artificial intelligence with a very good grade. Her research focuses on artificial intelligence, machine learning, computational vision, embedded systems, and robotics.

doi.org/10.51219/URForum.2025.Elaf-A.Saeed ISBN: 978-1-917892-34-6