



**Progress**

The image features a light blue background with a series of overlapping, wavy, horizontal bands in various shades of blue. These bands create a sense of movement and depth. In the center of the image, the word "Progress" is written in a bold, black, sans-serif font.

**Progress**

# Initial Research and Literature Review

Title	Methodology	Strengths	Limitations
An attention-based method for offline handwritten Urdu text recognition (ICFHR, 2020)(Anjum and Khan 2020) <sup>1</sup>	<ul style="list-style-type: none"><li>•Encoder Decoder Based</li><li>•CNN, DenseNet, BLSTM</li></ul>	<ul style="list-style-type: none"><li>•Position Change</li><li>•Attention Mechanism</li><li>•Relevant Context</li></ul>	<ul style="list-style-type: none"><li>•Prediction by text character</li><li>•Separate model for error correction</li></ul>
A convolutional recursive deep architecture for unconstrained Urdu handwriting recognition (Neural Computing & application, 2021) <sup>2</sup>	<ul style="list-style-type: none"><li>•Urdu Handwriting</li><li>•Convolution + BLSTM</li><li>•Lastly n-gram model</li></ul>	<ul style="list-style-type: none"><li>•State of art approaches</li><li>•Information loss avoid</li><li>•Image quality</li></ul>	<ul style="list-style-type: none"><li>•Separate n-gram model</li><li>•Lack of longer context</li><li>•Prone to Error</li></ul>
A Computationally Efficient Pipeline Approach to Full Page Offline Handwritten Text Recognition (ICDARW, 2019) <sup>3</sup>	<ul style="list-style-type: none"><li>•Word by word Localization</li><li>•CNN-BLSTM + Language model</li></ul>	<ul style="list-style-type: none"><li>•Line by Line less expensive</li><li>•Multi-down sampled</li><li>•Combining BLSTM</li></ul>	<ul style="list-style-type: none"><li>•Localize the text word by word</li><li>•Space issue</li><li>•Localize only English text</li></ul>
An online cursive handwritten medical words recognition system for busy doctors in developing countries for ensuring efficient healthcare service delivery (Scientific reports, 2022) <sup>4</sup>	<ul style="list-style-type: none"><li>•Line sequence from image</li><li>•BLSTM network</li></ul>	<ul style="list-style-type: none"><li>•SOTA results</li><li>•The whole sequence of characters</li><li>•Taking context in account</li></ul>	<ul style="list-style-type: none"><li>•Works only for online handwritten text extraction</li><li>•Requires doctors to use a smartpen to write.</li></ul>
<b>Multilingual handwritten numeral recognition using a robust deep network joint with transfer learning (Information Sciences (Elsevier),2021) (Fateh, et al. 2021) <sup>5</sup></b>	<ul style="list-style-type: none"><li>•<b>Multilingual Handwritten numbers</b></li><li>•<b>Deep CNN</b></li><li>•<b>Limit to Chinese, Arabic, English, Kannada, Persian, and Urdu</b></li><li>•<b>Language recognition and digit recognition</b></li><li>•<b>Best model parameters for the recognition of digits</b></li></ul>	<ul style="list-style-type: none"><li>•<b>SOTA Result</b></li><li>•<b>Employing Transfer Learning</b></li></ul>	<ul style="list-style-type: none"><li>•<b>Limited to numbers only</b></li><li>•<b>Multiple languages can lead to error in text localization</b></li><li>•<b>High error rate possible</b></li></ul>