

CHAPTER 55

TECHNOLOGY
INSTITUTE OF INFORMATICS
AND COMMUNICATION

Doctoral Theses

01. BUDHIRAJA (Rajat)
Design, and Development of an Ensemble Learning Framework for Time-Series Forecasting and Deepfake Detection.
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Abstract

The inherent ability to store information with the help of cyclic components make recurrent neural networks (RNN) the network of choice for processing sequential data input, but their training has often been marred with various limitations. Despite their adoption in various speech, text and time series (TS) forecasting tasks, their deployments at scale becomes somewhat limited. This is where reservoir computing (RC) buds out as a paradigm of recurrent neural network training which has been gaining a lot of traction owing to its ability of treating the recurrent part distinctly from its readouts. This lets the reservoir take the role of a generic computational engine for different tasks related to same input, considerably cutting down on complex computational costs. In summary, the convNet and RC based ensemble CoRN framework is not only shown to have the desired feature extraction characteristics, but also turns out to be an excellent performer for forecasting and detection tasks. The key aspects of this work, along with relevant results and directions for future work are concluded in

Contents

1. Introduction 2. Application of reservoir computing in a dynamical system 3. An ensemble learning architecture and framework 4. Deepfake detection for faces 5. Deepfake detection for medical imagery 6. Conclusion and scope for future work. 7 Bibliography.