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We investigate a deep learning Artificial Neural Network approach for creating weather forecast models using the climate data from the Nevada Climate Change Portal. Neural Networks are useful for modelling highly nonlinear and chaotic processes like weather. With the recent interest in deep learning Neural Networks, we explored the feasibility of a deep learning approach called Stacked Denoising Auto-Encoders for building forecast models that predict hourly air temperature. We considered historical hourly temperature, barometric pressure, humidity and wind speed data for building the model. We collected and processed the raw data from the Nevada Climate Change Portal subscribed sensors and use this data to empirically compare the performance of stacked denoising auto-encoders against traditional neural nets at predicting temperature. Experimental test results show that, with a good choice of parameters, stacked denoising auto-encoders achieved up to 98% accuracy in predicting temperature, beating traditional neural networks. Our results provide further empirical evidence of the broad applicability of deep neural networks.

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