Abstract

The control of variable speed wind turbines is a complex problem since they are considered as nonlinear and time varying systems. In general, classical control techniques do not take into consideration the stochastic and dynamical aspect of the wind and they are not very robust. In order to address these weaknesses, neural approaches are proposed: a direct neural model DNM of the wind turbine is elaborated and then an inverse neural controller INC is developed. The other objective of this study is to optimize the power generated by the wind turbine. To achieve this aim, we have elaborated a neural controller which takes into account the optimal speed of the turbine. Finally, some modifications of the neural control strategy are used to improve the results. The neural controllers were tested with a wind turbine simple mathematical model. The obtained results have shown better performance in comparison with classical control techniques.


Neural Control Strategies for Variable Speed Wind Turbine

- S. Mangrulkar, artificial neural systems, ISA Transactions, volume 29, Issue 1, (pp 5-7), 1990.

Index Terms

Computer Science
Control Systems

Keywords

Wind turbine  non linear system  neural modelling  neural control and hybrid control