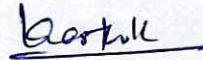


CERTIFICATE

This is to certify that the dissertation entitled "**The NumPy Array: A Structure for Efficient Numerical Computation**" submitted to the Karpagam Academy of Higher Education in partial fulfilment of the requirements for the award of the degree of **Master of Computer Applications** is a bonafide record of original research work done by **Gnanavel. M** during the period 2019-20 of their study in the Department of Computer Applications at Karpagam Academy of Higher Education, Coimbatore, under my supervision and guidance and the dissertation has not formed the basis for the award of any Degree/Diploma/Associate/Fellowship or similar title to any candidate of any University.

**Signature of Head of the Department**

Head of the Department
Department of Computer Application
Faculty of Arts, Science and Humanities
Karpagam Academy of Higher Education
Coimbatore – 641 021, Tamil Nadu, India.

**Signature of the Guide**

(Mrs. Karthick)