



**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE,  
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## **CERTIFICATE**

This is to certify that the thesis entitled “**Computational model predictions of acoustic and auditory changes for concurrent vowel identification**” submitted by **Harshavardhan S**, ID. No. **2016PHXF0203P** for award of Ph.D. of the Institute embodies original work done by him under my supervision.

Signature of the Supervisor \_\_\_\_\_

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