



Indian Institute of Technology Bombay
Continuing Education &
Quality Improvement Programmes (CE & QIP)

CERTIFICATE

This is to certify that

Prasanna Biswas

has participated in the CEP course on
Advanced Natural Language Processing

conducted for Qualcomm Bangalore by IIT Bombay during March 15–May 31, 2023



330ce

To verify, scan the QR code or visit <http://www.cep.iitb.ac.in/verify.html>

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Course Coordinator



Course Content

- Comprehensive examination of Natural Language Processing (NLP) topics
- Integration of theoretical exploration and practical implementations through live demonstrations
- In-depth discussions on the architecture of Recurrent Neural Networks (RNNs)
- Participants gained theoretical insights supplemented by hands-on exercises
- Reinforcement of advanced concepts, including Long Short-Term Memory (LSTM) networks and Gated Recurrent Units (GRUs), through theoretical understanding and practical exercises
- Theoretical exploration of attention mechanisms, particularly self-attention and multi-head attention within Transformer architectures
- Live demos illustrating the transformative impact of attention mechanisms on NLP tasks
- Curriculum extension to Large Language Models (LLMs) with exploration of models like GPT, BERT, and T5, showcasing applications to downstream tasks
- Theoretical discussions on adapters, low-rank adaptation (LoRA, QLoRA, etc.), and Stable Diffusion
- Live demonstrations providing tangible insights into theoretical concepts
- Examples, such as Transformer-based Part-of-Speech (POS) tagging and Stable Diffusion-based text-to-image generation, spanning the spectrum of NLP applications