



MICRO-SCHOOL

NITheCS

National Institute for
Theoretical and Computational Sciences

Introduction to Deep Learning with PyTorch

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Fri, 11 July 2025 | 12h00-12h30 SAST

Attend online

ABSTRACT

In this Micro-school, we will explore PyTorch, a popular and intuitive deep learning framework that makes building neural networks both accessible and efficient. PyTorch's dynamic computation graph and Pythonic interface allow for rapid experimentation and clear model development. I will provide an overview of PyTorch's essential building blocks, including tensors, automatic differentiation, and data handling with datasets and dataloaders. Through a live demonstration, I'll guide you step-by-step from installing PyTorch to building, training, and evaluating a simple Convolutional Neural Network (CNN) for recognising and classifying images of handwritten digits. By the end of this session, you'll be ready to start experimenting with your own deep learning models in PyTorch.

BIOGRAPHY



Dean is a third-year PhD student in the Quantum Research Group of Stellenbosch University, under the supervision of Prof Francesco Petruccione. His research focuses on the intersection of quantum computing and neuromorphic computing, to find groundbreaking hybridisation of these technologies. Dean completed his BSc and BSc Honours at the University of the Witwatersrand, majoring in astronomy, astrophysics, and theoretical physics. After this he completed his MSc with Prof Petruccione and Prof Ilya Sinayskiy (University of KwaZulu-Natal), which was based on an application of Open Quantum Systems techniques to model quantum phenomena in IBM quantum computers. His research interests have since evolved to include machine learning and quantum algorithms, which are central to the idea and aims of quantum neuromorphic computing, especially for applications such as artificial intelligence and deep learning.

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