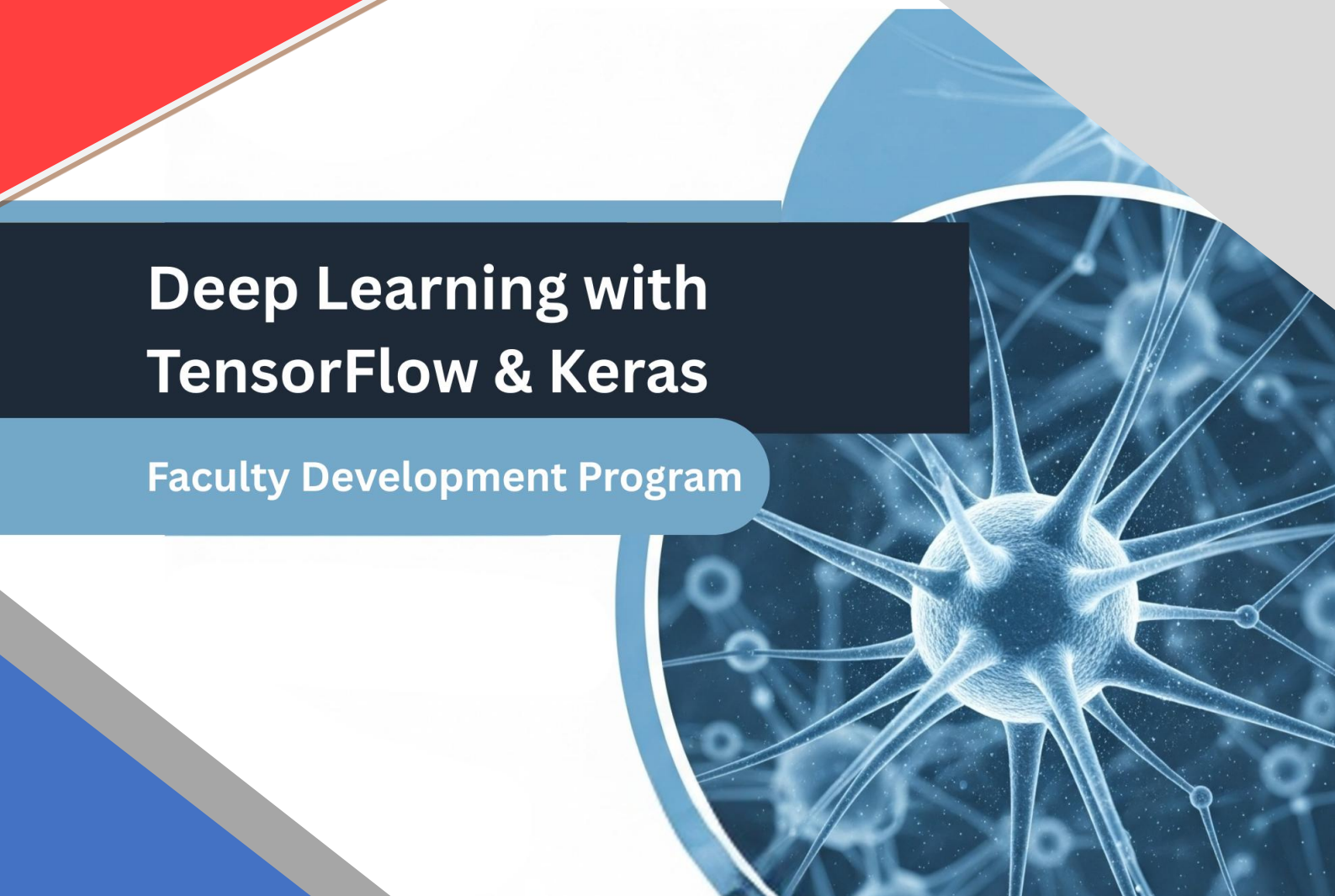
A REPORT ON

Faculty Development Program: Deep Learning with TensorFlow & Keras

Date: 21st July 2025 to 25th July 2025
Venue: EA-820, E-Block, Silver Oak University



Introduction:

"Faculty Development Programme: Deep Learning with TensorFlow and Keras" was organised by the **College of Technology, Silver Oak University** with **IEEE SOU SB** and **IEEE SOU CS SBC**. This five-day offline programme was designed exclusively for faculty members with the aim of bridging the gap between theoretical understanding and practical implementation of Artificial Intelligence and Machine Learning. Through carefully structured lectures, live demonstrations and hands-on coding sessions, the FDP provided participants with an immersive experience in designing and deploying deep learning models using industry-standard tools.

About the speaker:

The sessions were led by two distinguished faculty members from the College of Technology, SOU, whose expertise in the field of artificial intelligence and deep learning enriched the programme.

- **Prof. Ekta Vyas,** Assistant Professor, College of Technology, Silver Oak University
- **Prof. Bhumika Sindhav,** Assistant Professor, College of Technology, Silver Oak University

About the session:

Date: 21st July 2025 to 25th July 2025
Time: 04:00 PM - 05:00 PM
Venue: EA-820, E-Block, Silver Oak University
Participants: 15

The programme commenced with an introduction by Prof. Ekta Vyas, who familiarised participants with the fundamentals of deep learning and the significance of TensorFlow in the AI ecosystem. She explained how computational graphs operate within TensorFlow, allowing large-scale machine learning tasks to be performed efficiently. Participants were guided through setting up the environment, after which they successfully executed their first basic models, gaining confidence in working with the framework.

Building on the foundations, she took the participants deeper into TensorFlow's core functionalities. She demonstrated how tensors, variables and operations form the building blocks of deep learning models. Attendees explored data flow graphs and learnt to implement mathematical operations programmatically. Hands-on exercises enabled them to visualise the working of TensorFlow, reinforcing the theory with practice.

The third day shifted focus towards optimisation and model training. Prof. Ekta Vyas introduced participants to concepts such as backpropagation, gradient descent and loss functions. By experimenting with sample datasets, the faculty members were able to understand how models learn from data and adjust their parameters over multiple epochs. The session was highly interactive, with participants asking insightful questions about challenges in training deep learning models.

The spotlight then turned to Prof. Bhumika Sindhav, who introduced the participants to Keras, a high-level API that simplifies the process of building deep learning models. She began by highlighting the advantages of Keras over raw TensorFlow, especially its user-friendly syntax and modular design. Participants learnt how to construct a basic Sequential model, experimenting with different layers and activation functions. The ease of implementation gave them confidence in using Keras as a practical tool for model development.

Final day shifted the focus towards real-world applications of Keras as Prof. Bhumika Sindhav guided the participants through hands-on projects such as image classification and predictive modelling. She emphasised techniques like hyperparameter tuning, regularisation and performance evaluation to show how models could be improved for better accuracy. The session concluded with an open discussion, where faculty members reflected on how they could integrate these approaches into their teaching and research. By the end of the programme, participants not only understood how to build models but also how to apply them meaningfully in practical contexts.

Conclusion:

The 5-Day Faculty Development Program on Deep Learning with TensorFlow & Keras proved to be an enriching experience that combined theoretical knowledge with practical expertise. The structured progression from fundamental concepts to applied implementations ensured that participants not only learnt the intricacies of the frameworks but also gained the confidence to apply them in academic and professional contexts.

The workshop highlighted the potential of AI and deep learning to drive innovation, while instilling in participants a readiness to explore these tools further. The event's success was made possible through the continuous support and guidance of Dr. Satvik Khara, Dean, College of Technology, Silver Oak University; IEEE Senior Member; Chairperson, Technical Activity, Computer Society, IEEE Gujarat Section; Founding Member, Silver Oak University IEEE Student Branch, whose leadership created an atmosphere of learning and innovation.

Some glimpses of the session:

Prof. Ekta Vyas introducing faculties to concepts of backpropagation

Prof. Bhumika Sindhav guiding the attendees through hands-on projects

Attendees engaging actively while exploring practical Keras workflows and model building