The rapid growth of technology has not been without consequences for the environment. Energy consumption, electronic waste, and carbon footprints associated with manufacturing and disposal pose sustainability challenges. Striking a balance between technological progress and environmental stewardship will be crucial for a sustainable future.

While technology has enhanced healthcare, enabling better diagnosis, treatment, and patient care, there are concerns about its impact on mental and physical well-being. Excessive screen time, social media addiction, and sedentary lifestyles raise questions about the long-term effects on human health. Striving for a healthy relationship with technology and promoting digital well-being will be essential.

Looking ahead, emerging technologies such as quantum computing, biotechnology, and nanotechnology hold immense promise and potential risks. From advancements in personalized medicine to ethical implications of genetic engineering, the future landscape presents complex challenges that require thoughtful regulation, public discourse, and interdisciplinary collaboration.

Conclusion

Technology serves as a powerful force for progress, connectivity, and innovation. However, we must critically examine its dual nature and anticipate the implications that lie ahead. By proactively addressing ethical concerns, prioritizing sustainability, fostering digital well-being, and preparing for workforce transformations, we can shape a future where technology serves as a catalyst for positive change while mitigating potential risks. It is through responsible stewardship and collective efforts that we can navigate the other side of technology and build a more inclusive, sustainable, and ethically grounded future.

A DATA AUGMENTATION BASED DEEP LEARNING APPROACH FOR DEEPFAKE IMAGE DETECTION

Talib Muhsen Elebe

Altinbas University – Turkey

Scientific Supervisor – **Asst. Prof. Dr. Sefer Kurnaz**

Altinbas University – Turkey

Abstract: Deepfake technology, pushed by advanced deep learning algorithms, poses a serious threat to the integrity of visual content, potentially leading to misinformation, propaganda, and fraudulent evidence fabrication. our research proposes a rigorous framework for real and deepfake picture recognition. The suggested approach merges a transformer-based model, notably the Vision Transformer (ViT), coupled with fine-tuned Convolutional Neural Networks (CNNs).

Key words: Index Terms—depfake, deep learning, transformers, convolutional neual network.

Introduction

The ability to create digital graphics that look very realistic using few resources and easily available online instructions has led to the creation of numerous audio, video, and image files that are not authentic [1]. Deepfake uses deep learning to create altered photographs that are difficult to tell apart from real ones by incorporating a synthetic face into an original image. Deepfake generation has been made even easier by recent developments in fields such as Generative Adversarial Networks (GANs) [2],The capacity to influence digital media in extremely undetectable ways has resulted in the spread of false information, thanks to the convergence of cyber threats, artificial neural networks, and machine learning classifiers. Given deepfake images' potential worldwide influence and the extent to which they can jeopardise society's security and stability, the development of automated systems capable of identifying them has become vital. Convolutional Neural Networks (CNN) provide a trustworthy way to rapidly evaluate these automatically created false images [3].

Results and discussion

With an impressive 98% accuracy, the Vision Transformer (ViT) model blew away competitors VGG16 and Inception V3. The model's remarkable capacity to accurately categorize both deepfake and real images was further demonstrated by its 98% precision. The confusion matrix for the Vision Transformer (ViT) model provides a detailed of the model's performance in identifying actual and fake images. the ViT model has precision, recall, and F1-score values of 98%. When the model predicts an image as" Real," it is correct 98% of the time, captures 98% of actual" Real" instances, and gets a balanced F1-score of 98%. The collection contains 4760 instances of genuine photos, according to the support column. Fake Class: Similarly, for the class labelled" Fake," the model has precision, recall, and F1-score values of 98%. This indicates that the model correctly predicts" Fake" images 98% of the time, detects 98% of real" Fake" instances, and obtains balanced

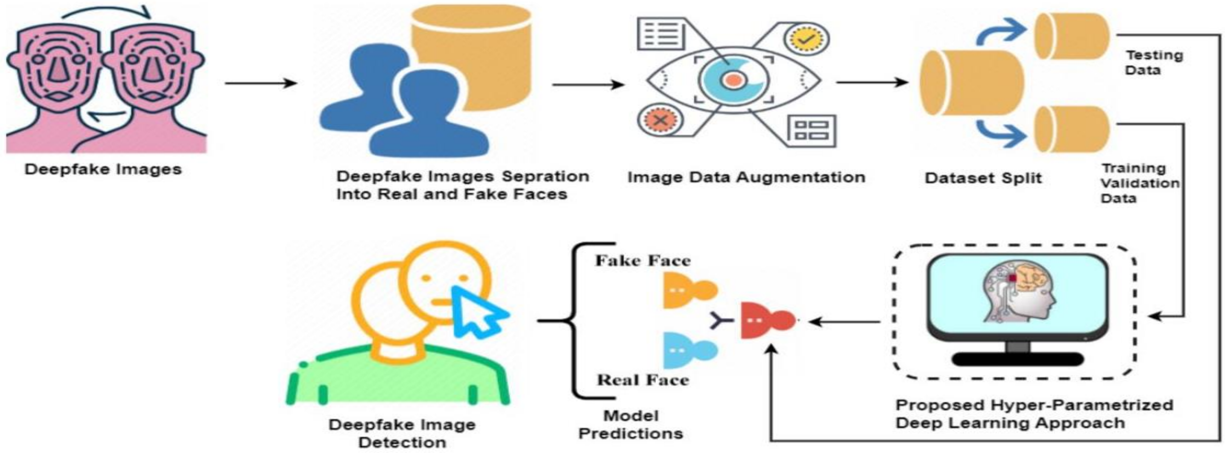

Fig 1. Visualization of fake and real image [3].

Conclusion

The proposed technique is a complex and complete framework that incorporates cutting-edge models and methodologies for successful actual and false image recognition. The findings demonstrate the validity of these approaches, particularly the Vision Transformer model, in addressing the issues provided by deepfake technology, as well as the possibility for enhanced deep learning solutions in ensuring the authenticity of visual material in our information world.

References

1. B. Chesney and D. Citron, "Deep fakes: A looming challenge for privacy, democracy, and national security," Calif. L. Rev., vol. 107, p. 1753, 2019.
2. D. Guera and E. J. Delp, "Deepfake video detection using recurrent neu- ral networks," in 2018 15th IEEE international conference on advanced video and signal based surveillance (AVSS). IEEE, 2018, pp. 1–6.
3. F. Iqbal, A. Abbasi, A. R. Javed, Z. Jalil, and J. Al-Karaki, "Deepfake audio detection via feature engineering and machine learning," in Woodstock'22: Symposium on the irreproducible science. IEEE, 2022, pp. 70–75.

HARNESSING THE POWER OF TECHNOLOGY IN YEMENI EDUCATION: CHALLENGES AND BARRIERS FACED IN TEACHING YEMENI SCHOOLCHILDREN

Thekra F. S. AL-Kamali, Israa A. A. Abdullah
Scientific Organization for Research and Innovation, Republic of Yemen
Scientific Supervisor – **Ahmed Ali Abdullah Al-Dilami**
(Ph.D., Scientific Organization for Research and Innovation, Republic of Yemen)

Abstract: Yemen's lack of a basic infrastructure and consistent Internet connectivity is one of the biggest obstacles to implementing technology in education. The primary barriers to Yemen's scientific technological advancement will be examined in this study.

Key words: Technology, Yemen, Yemeni school.

Introduction

In the digital age, technology has the potential to revolutionize education, providing