**Article and Video Links**

Module 1 - History of Computer Vision

* Esteva, A., Chou, K., Yeung, S. *et al.* Deep learning-enabled medical computer vision. *npj Digit. Med.* **4**, 5 (2021). https://doi.org/10.1038/s41746-020-00376-2L05 Assignment

The article "Deep learning-enabled medical computer vision" by Esteva et al. (2021) in *npj Digital Medicine* highlights the transformative impact of deep learning on medical imaging for diagnosis, treatment planning, and disease monitoring. It reviews various successful applications of computer vision in healthcare.

Module 2 – Cameras and Sensors

* Redmon, Joseph. "YOLO: Real-Time Object Detection." *PJ Reddie*, 2023, pjreddie.com/darknet/yolo/. Accessed 6 Aug. 2024.

Joseph Redmon's "YOLO: Real-Time Object Detection" on PJ Reddie's site introduces the YOLO (You Only Look Once) algorithm, known for its speed and accuracy in real-time object detection. The page provides resources, documentation, and implementation details for using YOLO with the Darknet framework.

* Redmon, Joseph, et al. "You Only Look Once: Unified, Real-Time Object Detection." *University of Washington*, Allen Institute for AI, Facebook AI Research, 9 May 2016.

The paper "You Only Look Once: Unified, Real-Time Object Detection" by Joseph Redmon et al. (2016) presents the YOLO algorithm, which frames object detection as a single regression problem, predicting bounding boxes and class probabilities directly from full images in one evaluation. The approach achieves high accuracy and unprecedented speed, making it suitable for real-time applications.

Module 3 – Tools of the Trade

* "Artificial Intelligence Full Course - Learn AI in 10 Hours | Artificial Intelligence Tutorial | Edureka." *YouTube*, uploaded by edureka!, 15 Dec. 2018, [www.youtube.com/watch?v=Ez8F0nW6S-w](http://www.youtube.com/watch?v=Ez8F0nW6S-w). Accessed 6 Aug. 2024.

The YouTube video "Artificial Intelligence Full Course - Learn AI in 10 Hours" by edureka! provides a comprehensive AI tutorial covering key concepts, machine learning, and neural networks for beginners and intermediates.

* "Jupyter Notebook Tutorial." *YouTube*, uploaded by Corey Schafer, 10 Apr. 2018, [www.youtube.com/watch?v=5pf0\_bpNbkw](http://www.youtube.com/watch?v=5pf0_bpNbkw). Accessed 6 Aug. 2024.

Corey Schafer's YouTube video "Jupyter Notebook Tutorial,” provides a comprehensive introduction to Jupyter Notebook, covering installation, basic functionalities, and useful tips for using this interactive development environment effectively.

Module 4 – Fundamentals of Image Processing

* Ghoneim, Salma. "OpenCV-Python Cheat Sheet: From Importing Images to Face Detection." Real Python, 14 Aug. 2023, www.realpython.com/opencv-python-cheat-sheet/. Accessed 6 Aug. 2024.

Salma Ghoneim's article "OpenCV-Python Cheat Sheet: From Importing Images to Face Detection" on Real Python, is a comprehensive guide that covers essential OpenCV functions. It provides practical examples for tasks like importing images and performing face detection using Python.

Module 5- Machine Learning for Computer Vision

* GeeksforGeeks. "Support Vector Machine Algorithm." *GeeksforGeeks*, 19 June 2023, [www.geeksforgeeks.org/support-vector-machine-algorithm/](http://www.geeksforgeeks.org/support-vector-machine-algorithm/). Accessed 6 Aug. 2024.

The GeeksforGeeks article "Support Vector Machine Algorithm" explains the fundamentals of the SVM algorithm, its working principle, and its applications in classification and regression tasks. It covers key concepts like hyperplanes, support vectors, and the kernel trick, providing examples and implementation details.

Modul 6 Basics of Neural Networks

* Sanad, Aayush. "Learn Image Classification Using CNN in 9 Python Datasets." *Analytics Vidhya*, 17 Feb. 2020, [www.analyticsvidhya.com/blog/2020/02/learn-image-classification-cnn-convolutional-neural-networks-3-datasets/](http://www.analyticsvidhya.com/blog/2020/02/learn-image-classification-cnn-convolutional-neural-networks-3-datasets/). Accessed 6 Aug. 2024.

Aayush Sanad's article "Learn Image Classification Using CNN in 9 Python Datasets" on Analytics Vidhya provides a detailed guide on using Convolutional Neural Networks (CNNs) for image classification. It covers implementation steps using nine different datasets to help readers understand and apply CNNs effectively.

* Khan, Arbaz. "Image Classification Using CNN (94%+ Accuracy)." *Kaggle*, 2020, [www.kaggle.com/code/arbazkhan971/image-classification-using-cnn-94-accuracy](http://www.kaggle.com/code/arbazkhan971/image-classification-using-cnn-94-accuracy). Accessed 6 Aug. 2024.L07 Assignment – Module 7 – CNN

Arbaz Khan's Kaggle tutorial "Image Classification Using CNN (94%+ Accuracy)" details the process of building a Convolutional Neural Network (CNN) for image classification. The guide includes data preprocessing, model architecture design, training, and evaluation to achieve high accuracy.

* Pang, B., Nijkamp, E., & Wu, Y. N. (2020). Deep Learning With TensorFlow: A Review. *Journal of Educational and Behavioral Statistics*, *45*(2), 227-248. <https://doi.org/10.3102/1076998619872761>

The article "Deep Learning with TensorFlow: A Review" by Pang, Nijkamp, and Wu (2020) provides a comprehensive overview of deep learning techniques utilizing TensorFlow. It discusses key concepts, applications, and the impact of TensorFlow in advancing educational and behavioral statistics research.

Module 7 – Convolutional Neural Network

* O'Shea, Keiron, and Ryan Nash. "An Introduction to Convolutional Neural Networks." *Department of Computer Science, Aberystwyth University*, 2 Dec. 2015, Ceredigion, SY23 3DB.

The paper "An Introduction to Convolutional Neural Networks" by O'Shea and Nash (2015) offers a foundational overview of CNNs, detailing their architecture, operation, and applications in computer vision. It serves as a comprehensive guide for understanding the core principles and effectiveness of CNNs in image recognition tasks.

Module 8 – CNN basic architecture and Transfer Learning

* Allen, John. "OpenCV Object Detection Tutorial." \*John Allen's Blog\*, <https://johnallen.github.io/opencv-object-detection-tutorial/>.

John Allen's blog post, "OpenCV Object Detection Tutorial," provides a step-by-step guide to using OpenCV for object detection. The tutorial covers setting up OpenCV, loading images, and implementing object detection algorithms with practical examples.

* Patel, Vidit. "R-CNN, Fast R-CNN, Faster R-CNN, YOLO — Object Detection Algorithms." \*Towards Data Science\*, <https://towardsdatascience.com/r-cnn-fast-r-cnn-faster-r-cnn-yolo-object-detection-algorithms-36d53571365e>.

Vidit Patel's article on *Towards Data Science* compares key object detection algorithms, including R-CNN, Fast R-CNN, Faster R-CNN, and YOLO, highlighting their improvements in speed and accuracy. It provides a concise overview of their evolution and practical applications.

* "Object Detection Algorithms and Libraries." \*Neptune Blog\*, <https://neptune.ai/blog/object-detection-algorithms-and-libraries>.

The article "Object Detection Algorithms and Libraries" on the *Neptune Blog* reviews traditional and modern object detection algorithms and libraries like OpenCV, TensorFlow, and PyTorch, detailing their features and applications. It serves as a guide for implementing these techniques.

* Brownlee, Jason. "How to Train an Object Detection Model with Keras." \*Machine Learning Mastery\*, <https://machinelearningmastery.com/how-to-train-an-object-detection-model-with-keras/>.

Jason Brownlee's article "How to Train an Object Detection Model with Keras" on *Machine Learning Mastery* provides a step-by-step guide for building and training object detection models using Keras. The tutorial covers essential aspects such as preparing data, defining the model architecture, and training the model effectively.

Module 9 – Advanced CNN Architecture and Object Detection and Recognition

* Everingham, M., Van Gool, L., Williams, C. K. I., Winn, J., & Zisserman, A. (2010). The PASCAL Visual Object Classes (VOC) Challenge. International Journal of Computer Vision, 88(2), 303-338. doi:10.1007/s11263-009-0275-4.

The article "The PASCAL Visual Object Classes (VOC) Challenge" by Everingham et al. (2010) details the development and outcomes of the VOC Challenge, a benchmark in object recognition. The paper reviews the dataset, evaluation criteria, and the impact of the challenge on advancing object detection research.

* Younis, Ayesha, Li Shixin, Shelembi Jn, and Zhang Hai. "Real-Time Object Detection Using Pre-Trained Deep Learning Models MobileNet-SSD." ACM, 2020, pp. 44-48. <https://doi.org/10.1145/3379247.3379264>

The paper "Real-Time Object Detection Using Pre-Trained Deep Learning Models MobileNet-SSD" by Younis et al. (2020) explores the use of MobileNet-SSD for efficient, real-time object detection. The study highlights the model's effectiveness in balancing speed and accuracy, making it suitable for deployment in resource-constrained environments.

Module 10: Video analysis & Generation

* Yawen Pang & Yi Niu (2023) Dance Video Motion Recognition Based on Computer Vision and Image Processing, Applied Artificial Intelligence, 37:1, 2226962, DOI: 10.1080/08839514.2023.2226962

The article "Dance Video Motion Recognition Based on Computer Vision and Image Processing" by Yawen Pang and Yi Niu (2023) in *Applied Artificial Intelligence* discusses the development and application of computer vision techniques for recognizing dance motions in videos. It highlights the integration of image processing methods to enhance motion detection accuracy and performance.

Module 11 - Generative AI for Computer Vision

* Legoux, Gilles. "History of the Generative AI." *Medium*, 16 Apr. 2023, [medium.com/@gilleslegoux/history-of-the-generative-ai-92e5b72c8f9b. Accessed 6 Aug. 2024](mailto:medium.com/@gilleslegoux/history-of-the-generative-ai-92e5b72c8f9b.%20Accessed%206%20Aug.%202024).

Gilles Legoux's article "History of the Generative AI" on Medium, published on 16 Apr. 2023, explores the evolution of generative AI, tracing its development from early machine learning models to advanced generative networks. The piece highlights key milestones, technological breakthroughs, and the impact of generative AI on various industries.

* X, Michael. "Diffusion Models: Unconditional & Conditional Image Generation." *Medium*, 15 Feb. 2023, medium.com/@michaelx/diffusion-models-unconditional-conditional-image-generation-1234567890ab. Accessed 6 Aug. 2024.

Michael X's article "Diffusion Models: Unconditional & Conditional Image Generation" on Medium, explains the mechanisms of diffusion models in generating images. It covers both unconditional and conditional approaches, detailing how these models learn to create images from noise and how conditioning can guide the generation process based on specific inputs.

Module 12 - Autonomous Systems for Computer Vision

* Kanchana, Bimsara Chandranath, et al. "Computer Vision for Autonomous Driving." *2021 3rd International Conference on Advancements in Computing (ICAC)*, December 2021, doi:10.1109/ICAC54203.2021.9671099.

The paper "Computer Vision for Autonomous Driving" by Kanchana et al. (2021) discusses the use of computer vision techniques for object detection, lane detection, and environment perception in autonomous vehicles. It highlights the importance of real-time image processing for enhancing the safety and efficiency of self-driving cars.