

REFERENCES

- 7.3. Padding and Stride — Dive into Deep Learning 1.0.0-alpha0 documentation. (n.d.). Dive into Deep Learning. Retrieved July 17, 2022, from https://d2l.ai/chapter_convolutional-neural-networks/padding-and-strides.html
- ActiveState. (2021, November 25). What Is Pandas in Python? Everything You Need to Know. Retrieved July 20, 2022, from <https://www.activestate.com/resources/quick-reads/what-is-pandas-in-python-everything-you-need-to-know/>
- Aich, A. (2021, March 22). ECG Atrial Fibrillation Classification Using CNN. GitHub. <https://github.com/animikhaich/ECG-Atrial-Fibrillation-Classification-Using-CNN>
- Amann, A., Tratnig, R., & Unterkofler, K. (2005). A new ventricular fibrillation detection algorithm for automated external defibrillators. *Computers in Cardiology*, 2005. <https://doi.org/10.1109/cic.2005.1588162>
- Arrhythmia | NHLBI, NIH. (2020, June 3). NCBI. <https://www.nlm.nih.gov/health-topics/arrhythmia#:~:text=The%20main%20types%20of%20arrhythmia,conduction%20disorders%20are%20covered%20separately.>
- Baheti, P. (2022, June 21). Activation Functions in Neural Networks [12 Types & Use Cases]. V7labs. Retrieved July 17, 2022, from <https://www.v7labs.com/blog/neural-networks-activation-functions#:~:text=Sigmoid%20%2F%20Logistic%20Activation%20Function&text=it%20is%20commonly%20used%20for,choice%20because%20of%20its%20range.>
- Brownlee, J. (2020a, August 20). A Gentle Introduction to the Rectified Linear Unit (ReLU). *Machine Learning Mastery*. Retrieved July 17, 2022, from <https://machinelearningmastery.com/rectified-linear-activation-function-for-deep-learning-neural-networks/>
- Brownlee, J. (2020b, August 28). 1D Convolutional Neural Network Models for Human Activity Recognition. *Machine Learning Mastery*. <https://machinelearningmastery.com/cnn-models-for-human-activity-recognition-time-series-classification/>
- Bunch, T. J., White, R. D., Gersh, B. J., Meverden, R. A., Hodge, D. O., Ballman, K. V., Hammill, S. C., Shen, W. K., & Packer, D. L. (2003). Long-Term Outcomes of Out-of-Hospital Cardiac Arrest after Successful Early Defibrillation. *New England Journal of Medicine*, 348(26), 2626–2633. <https://doi.org/10.1056/nejmoa023053>
- Caswell, T. A., Droettboom, M., Lee, A., Andrade, E. S. de, Hoffmann, T., Klymak, J., Hunter, J., Firing, E., Stansby, D., Varoquaux, N., Nielsen, J. H., Root, B., May, R., Elson, P., Seppänen, J. K.,

- Dale, D., Lee, J.-J., McDougall, D., Straw, A., ... Ivanov, P. (2022). matplotlib/matplotlib: REL: v3.5.2. <https://doi.org/10.5281/ZENODO.6513224>
- Chollet, F., & Others. (2015). Keras. Ανακτήθηκε από <https://keras.io>
- Chugh, S. S., Havmoeller, R., Narayanan, K., Singh, D., Rienstra, M., Benjamin, E. J., Gillum, R. F., Kim, Y. H., McAnulty, J. H., Zheng, Z. J., Forouzanfar, M. H., Naghavi, M., Mensah, G. A., Ezzati, M., & Murray, C. J. (2014). Worldwide Epidemiology of Atrial Fibrillation. *Circulation*, 129(8), 837–847. <https://doi.org/10.1161/circulationaha.113.005119>
- Currie, G., Hawk, K. E., Rohren, E., Vial, A., & Klein, R. (2019). Machine Learning and Deep Learning in Medical Imaging: Intelligent Imaging. *Journal of Medical Imaging and Radiation Sciences*, 50(4), 477–487. <https://doi.org/10.1016/j.jmir.2019.09.005>
- TensorFlow Developers. (2022). TensorFlow. <https://doi.org/10.5281/ZENODO.6574269>
- Ding, Y. (2021, December 16). Calculating Parameters of Convolutional and Fully Connected Layers with Keras. Medium. Retrieved July 17, 2022, from [https://dingyan89.medium.com/calculating-parameters-of-convolutional-and-fully-connected-layers-with-keras-186590df36c6#:~:text=So%20the%20output%20shape%20of,14%2C14%2C8\).](https://dingyan89.medium.com/calculating-parameters-of-convolutional-and-fully-connected-layers-with-keras-186590df36c6#:~:text=So%20the%20output%20shape%20of,14%2C14%2C8).)
- Doshi, S. (2021, December 7). Various Optimization Algorithms For Training Neural Network. Medium. Retrieved July 17, 2022, from <https://towardsdatascience.com/optimizers-for-training-neural-network-59450d71caf6>
- Dumane, G. (2021, December 13). Introduction to Convolutional Neural Network (CNN) using Tensorflow. Medium. Retrieved July 17, 2022, from <https://towardsdatascience.com/introduction-to-convolutional-neural-network-cnn-de73f69c5b83#:~:text=Dense%20Layer%20is%20simple%20layer,multiple%20number%20of%20such%20neurons.>
- Fukushima, K. (1980). Neocognitron: A self-organizing neural network model for a mechanism of pattern recognition unaffected by shift in position. *Biological Cybernetics*, 36(4), 193–202. <https://doi.org/10.1007/bf00344251>
- Fukushima, K. (2007). Neocognitron. *Scholarpedia*, 2(1), 1717. <https://doi.org/10.4249/scholarpedia.1717>
- Géron, A. (2019). *Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems* (2nd ed.). O’Reilly Media.
- Godoy, D. (2022, July 10). Understanding binary cross-entropy / log loss: a visual explanation. Medium. <https://towardsdatascience.com/understanding-binary-cross-entropy-log-loss-a-visual-explanation-a3ac6025181a>

- Gu'Erin, J., Gibaru, O., Thiery, S., & Nyiri, E. (2018). CNN features are also great at unsupervised classification. Laboratoire Des Sciences de l'Information et Des Syst`emes.
<https://arxiv.org/pdf/1707.01700.pdf>
- Gupta, A. (2022, May 24). A Comprehensive Guide on Deep Learning Optimizers. Analytics Vidhya. Retrieved July 17, 2022, from <https://www.analyticsvidhya.com/blog/2021/10/a-comprehensive-guide-on-deep-learning-optimizers/#:%7E:text=While%20training%20the%20deep%20learning,loss%20and%20improve%20the%20accuracy.>
- Gupta, A., Ramanath, R., Shi, J., & Keerthi, S. (2021). Adam vs. SGD: Closing the generalization gap on image classification. OPT2021: 13th Annual Workshop on Optimization for Machine Learning. <https://opt-ml.org/papers/2021/paper53.pdf>
- Harris, C. R., Millman, K. J., van der Walt, S. J., Gommers, R., Virtanen, P., Cournapeau, D., Wieser, E., Taylor, J., Berg, S., Smith, N. J., Kern, R., Picus, M., Hoyer, S., van Kerkwijk, M. H., Brett, M., Haldane, A., del Río, J. F., Wiebe, M., Peterson, P., . . . Oliphant, T. E. (2020). Array programming with NumPy. *Nature*, 585(7825), 357–362. <https://doi.org/10.1038/s41586-020-2649-2>
- How to calculate the number of parameters for a Convolutional and Dense layer in Keras? (2021, August 29). Knowledge Transfer. Retrieved July 17, 2022, from <https://androidkt.com/calculate-number-parameters-convolutional-dense-layer-keras/>
- Hu, J., Niu, H., Carrasco, J., Lennox, B., & Arvin, F. (2020). Voronoi-Based Multi-Robot Autonomous Exploration in Unknown Environments via Deep Reinforcement Learning. *IEEE Transactions on Vehicular Technology*, 69(12), 14413–14423. <https://doi.org/10.1109/tvt.2020.3034800>
- Hubel, D. H., & Wiesel, T. N. (1959). Receptive fields of single neurones in the cat's striate cortex. *The Journal of Physiology*, 148(3), 574–591. <https://doi.org/10.1113/jphysiol.1959.sp006308>
- Hubel, D. H., & Wiesel, T. N. (1968). Receptive fields and functional architecture of monkey striate cortex. *The Journal of Physiology*, 195(1), 215–243. <https://doi.org/10.1113/jphysiol.1968.sp008455>
- J. (2022). JupyterLab computational environment. Github. <https://github.com/jupyterlab/jupyterlab>
- Joseph, R. (2021, December 7). Grid Search for model tuning - Towards Data Science. Medium. Retrieved July 18, 2022, from <https://towardsdatascience.com/grid-search-for-model-tuning-3319b259367e>
- Koza, J. R., Bennett, F. H., Andre, D., & Keane, M. A. (1996). Automated Design of Both the Topology and Sizing of Analog Electrical Circuits Using Genetic Programming. *Artificial Intelligence in Design '96*, 151–170. https://doi.org/10.1007/978-94-009-0279-4_9

- Krummen, D. E., Ho, G., Villongco, C. T., Hayase, J., & Schricker, A. A. (2016). Ventricular fibrillation: triggers, mechanisms and therapies. *Future Cardiology*, 12(3), 373–390.
<https://doi.org/10.2217/fca-2016-0001>
- LAWRENCE, D. R., PALACIOS-GONZÁLEZ, C., & HARRIS, J. (2016). Artificial Intelligence. *Cambridge Quarterly of Healthcare Ethics*, 25(2), 250–261.
<https://doi.org/10.1017/s0963180115000559>
- Layer - Flatten. (n.d.). TensorSpace.js. Retrieved July 17, 2022, from
<https://tensorspace.org/html/docs/layerFlatten.html#:~:text=Flatten%20layer%20is%20used%20to,to%20the%20full%20connected%20layer.>
- LeCun, Y., Bengio, Y., & Hinton, G. (2015). Deep learning. *Nature*, 521(7553), 436–444.
<https://doi.org/10.1038/nature14539>
- M. (2018a, May 31). How to calculate the number of parameters in the CNN? Medium. Retrieved July 17, 2022, from <https://medium.com/@iamvarman/how-to-calculate-the-number-of-parameters-in-the-cnn-5bd55364d7ca>
- Maithani, M. (2021, January 27). Guide To Tensorflow Keras Optimizers. *Analytics India Magazine*. Retrieved July 17, 2022, from <https://analyticsindiamag.com/guide-to-tensorflow-keras-optimizers/>
- Marblestone, A. H., Wayne, G., & Kording, K. P. (2016). Toward an Integration of Deep Learning and Neuroscience. *Frontiers in Computational Neuroscience*, 10.
<https://doi.org/10.3389/fncom.2016.00094>
- Mitchell, T. M. (1997). *Machine Learning* (1st ed.). McGraw-Hill Education.
- Module: tf.keras.activations | TensorFlow Core v2.9.1. (n.d.). TensorFlow. Retrieved July 17, 2022, from https://www.tensorflow.org/api_docs/python/tf/keras/activations
- P. (2018b, March 4). Understanding of Convolutional Neural Network (CNN) — Deep Learning. Medium. <https://medium.com/@RaghavPrabhu/understanding-of-convolutional-neural-network-cnn-deep-learning-99760835f148>
- Panda, R., Jain, S., Tripathy, R., & Acharya, U. R. (2020). Detection of shockable ventricular cardiac arrhythmias from ECG signals using FFREWT filter-bank and deep convolutional neural network. *Computers in Biology and Medicine*, 124, 103939.
<https://doi.org/10.1016/j.combiomed.2020.103939>
- Pedregosa, F., Varoquaux, G., Gramfort, A., Michel, V., Thirion, B., Grisel, O., ... Duchesnay, E. (2011). Scikit-learn: Machine Learning in Python. *Journal of Machine Learning Research*, 12, 2825–2830.

- Peixeiro, M. (2021, December 8). The 3 Best Optimization Methods in Neural Networks - Towards Data Science. Medium. Retrieved July 17, 2022, from <https://towardsdatascience.com/the-3-best-optimization-methods-in-neural-networks-40879c887873>
- Python. (2022, July 11). Python.Org. Retrieved July 20, 2022, from <https://www.python.org/>
- PhysioNet. (n.d.). PhysioNet. Retrieved July 20, 2022, from <https://physionet.org/>
- PhysioNet ATM. (n.d.). PhysioNet ATM. <https://archive.physionet.org/cgi-bin/atm/ATM>
- Prabhu, R. (2020, February 5). Understanding of Convolutional Neural Network (CNN) — Deep Learning. Medium. <https://medium.com/@RaghavPrabhu/understanding-of-convolutional-neural-network-cnn-deep-learning-99760835f148>
- Ramesh, S. (2021, July 15). A guide to an efficient way to build neural network architectures- Part II: Hyper-parameter selection and tuning for Convolutional Neural Networks using Hyperas on Fashion-MNIST. Medium. Retrieved July 17, 2022, from <https://towardsdatascience.com/a-guide-to-an-efficient-way-to-build-neural-network-architectures-part-ii-hyper-parameter-42efca01e5d7>
- Rampasek, L., & Goldenberg, A. (2016). TensorFlow: Biology's Gateway to Deep Learning? Cell Systems, 2(1), 12–14. <https://doi.org/10.1016/j.cels.2016.01.009>
- Reback, J., jbrockmendel, McKinney, W., Bossche, J. van den, Roeschke, M., Augspurger, T., Hawkins, S., Cloud, P., gyoung, Sinhrks, Hoefler, P., Klein, A., Petersen, T., Tratner, J., She, C., Ayd, W., Naveh, S., Darbyshire, J., Shadrach, R., ... Li, T. (2022). pandas-dev/pandas: Pandas 1.4.3. <https://doi.org/10.5281/ZENODO.6702671>
- Sabut, S., Pandey, O., Mishra, B. S., & Mohanty, M. (2021). Detection of ventricular arrhythmia using hybrid time–frequency-based features and deep neural network. Physical and Engineering Sciences in Medicine, 44(1), 135–145. <https://doi.org/10.1007/s13246-020-00964-2>
- Saha, S. (2021, December 7). A Comprehensive Guide to Convolutional Neural Networks — the ELI5 way. Medium. Retrieved July 17, 2022, from <https://towardsdatascience.com/a-comprehensive-guide-to-convolutional-neural-networks-the-eli5-way-3bd2b1164a53>
- Schmidhuber, J. (2015). Deep Learning. Scholarpedia, 10(11), 32832. <https://doi.org/10.4249/scholarpedia.32832>
- Schulz, H., & Behnke, S. (2012). Deep Learning. KI - Künstliche Intelligenz, 26(4), 357–363. <https://doi.org/10.1007/s13218-012-0198-z>
- Shahid, M. (2021, December 8). Convolutional Neural Network - Towards Data Science. Medium. Retrieved July 17, 2022, from <https://towardsdatascience.com/covolutional-neural-network-cb0883dd6529>

- Stewart, M. (2021, December 8). Simple Introduction to Convolutional Neural Networks. Medium. Retrieved July 17, 2022, from <https://towardsdatascience.com/simple-introduction-to-convolutional-neural-networks-cdf8d3077bac>
- Team, K. (n.d.-a). Keras documentation: Dropout layer. Keras. Retrieved July 18, 2022, from https://keras.io/api/layers/regularization_layers/dropout/#:%7E:text=The%20Dropout%20layer%20randomly%20sets,over%20all%20inputs%20is%20unchanged.
- tf.keras.layers.Conv2D | TensorFlow Core v2.9.1. (n.d.). TensorFlow. Retrieved July 17, 2022, from https://www.tensorflow.org/api_docs/python/tf/keras/layers/Conv2D
- Valueva, M., Nagornov, N., Lyakhov, P., Valuev, G., & Chervyakov, N. (2020). Application of the residue number system to reduce hardware costs of the convolutional neural network implementation. *Mathematics and Computers in Simulation*, 177, 232–243. <https://doi.org/10.1016/j.matcom.2020.04.031>
- Vasudev, R. (2022, April 15). Understanding and Calculating the number of Parameters in Convolution Neural Networks (CNNs). Medium. Retrieved July 17, 2022, from [https://towardsdatascience.com/understanding-and-calculating-the-number-of-parameters-in-convolution-neural-networks-cnns-fc88790d530d#:%7E:text=Number%20of%20parameters%20in%20a%20CONV%20layer%20would%20be%203A%20\(\(,1\)*number%20of%20filters\).](https://towardsdatascience.com/understanding-and-calculating-the-number-of-parameters-in-convolution-neural-networks-cnns-fc88790d530d#:%7E:text=Number%20of%20parameters%20in%20a%20CONV%20layer%20would%20be%203A%20((,1)*number%20of%20filters).)
- Verma, S. (2019, June 20). Understanding different Loss Functions for Neural Networks. Medium. Retrieved July 17, 2022, from <https://shiva-verma.medium.com/understanding-different-loss-functions-for-neural-networks-dd1ed0274718#:%7E:text=The%20Loss%20Function%20is%20one,used%20to%20calculate%20the%20gradients.>
- Waibel, A. (1987, December). Phoneme Recognition Using Time-Delay Neural Networks. Meeting of the Institute of Electrical, Information and Communication Engineers (IEICE). Tokyo, Japan.
- Waskom, M. L. (2021). seaborn: statistical data visualization. *Journal of Open Source Software*, 6(60), 3021. doi:10.21105/joss.03021