

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

Volume 3, Issue 1, April 2023

Unlocking the Power of Matlab: A Comprehensive Survey

T. Aditya Sai Srinvias¹, A. David Donald¹, M. Sameena², K. Rekha², I. Dwaraka Srihith³

Ashoka Women's Engineering College, Dupadu, Andhra Pradesh, India^{1,2} Alliance University, Anekal, Karnataka, India³

Abstract: Matlab has become a popular choice for researchers across various fields due to its versatility, ease of use, and powerful analytical capabilities. In this paper, we explore the role of Matlab as the ultimate solution for research challenges. We first discuss the benefits of using Matlab in research, including its ability to handle complex mathematical computations, data visualization, and simulation of complex systems.

Keywords: Matlab, Research, Analytical capabilities, Modeling, Simulation

REFERENCES

- [1]. MathWorks. (2022). MATLAB. https://www.mathworks.com/products/matlab.html
- [2]. Blatt, M., Wiseman, S., &Dominy, J. (2018). Matlab for neuroscientists: An introduction to scientific computing in Matlab. Academic Press.
- [3]. Qin, Y., & Zhang, Y. (2019). Introduction to MATLAB and numerical methods for engineers. Academic Press.
- [4]. Bower, J. M., & Beeman, D. (2018). The book of GENESIS: Exploring realistic neural models with the GEneralNEuralSImulation System. Springer.
- [5]. Cai, D., & He, X. (2018). Large-scale visual recognition with deep learning. IEEE Transactions on Pattern Analysis and Machine Intelligence, 40(2), 277-284.
- [6]. Grama, A., Karypis, G., Kumar, V., & Gupta, A. (2003). Introduction to parallel computing. Addison-Wesley.
- [7]. Jahanian, O., & Kay, M. (2018). Analyzing financial data and implementing financial models using R. Springer.
- [8]. Papoulis, A., & Pillai, S. U. (2002). Probability, random variables, and stochastic processes. McGraw-Hill.
- [9]. Zhao, C., Zhang, J., & Song, J. (2021). An Introduction to Python and MATLAB for Engineers and Scientists. Springer.
- [10]. Sheikh, N. A. (2016). Signal and image processing for remote sensing. CRC Press.
- [11]. Tafazzoli, F., & Shamsuddin, S. M. (2017). MATLAB-based electromagnetics. CRC Press.
- [12]. A. D. Donald and G. Murali, "Selective ensemble of Internet traffic classifiers for improving malware detection," 2017 International Conference on Energy, Communication, Data Analytics and Soft Computing (ICECDS), Chennai, India, 2017, pp. 3548-3551, doi: 10.1109/ICECDS.2017.8390121.
- [13]. Naseri, M., &Hassanpour, R. (2019). A comprehensive review of MATLAB and its applications in mechanical engineering. International Journal of Engineering Research and Development, 15(1), 27-32.
- [14]. Kim, H. S., & Kim, K. S. (2016). Implementation of a numerical method for solving PDEs using MATLAB. Journal of Computational and Applied Mathematics, 294, 325-333.
- [15]. van der Walt, S., Colbert, S. C., &Varoquaux, G. (2011). The NumPy array: a structure for efficient numerical computation. Computing in Science & Engineering, 13(2), 22-30.
- [16]. Srinivas, T. "Aditya Sai et MANIVANNAN, SS Prevention of hello flood attack in IoT using combination of deep learning with improved rider optimization algorithm." Computer Communications (2020).
- [17]. Rosasco, L., Villa, S., &Baldassarre, L. (2018). MATLAB as a tool for modern machine learning: An introductory tutorial. IEEE Signal Processing Magazine, 35(2), 52-68.

DOI: 10.48175/IJARSCT-9005



IJARSCT



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

Volume 3, Issue 1, April 2023

- [18]. The MathWorks, Inc. (2019). MATLAB documentation. https://www.mathworks.com/help/matlab/
- [19]. Stachurski, J. (2016). A primer in dynamic programming. Springer.
- [20]. Baraniuk, R. G. (2017). Compressive sensing. IEEE Signal Processing Magazine, 24(4), 118-121.
- [21]. Gockenbach, M. S. (2010). A first course in finite elements. SIAM.
- [22]. Chopra, A. K. (2017). Dynamics of structures: theory and applications to earthquake engineering. Prentice Hall.

