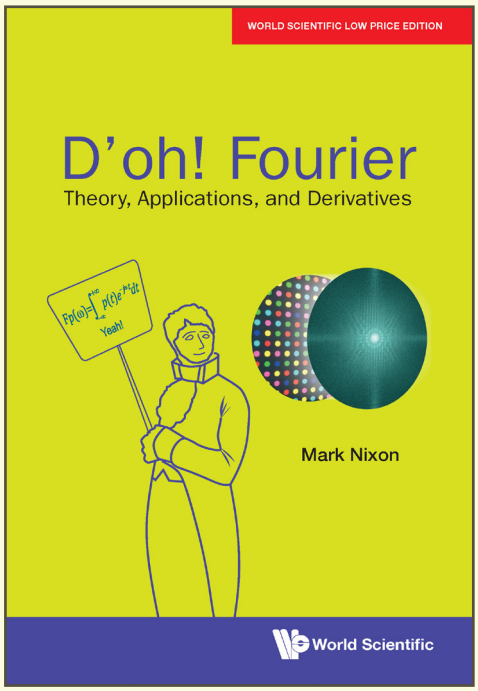
D'OH! FOURIER

Theory, Applications, and Derivatives



By **Mark Nixon**
(University of Southampton, UK)

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ABOUT THE BOOK

D'oh! Fourier introduces the Fourier transform and is aimed at undergraduates in Computer Science, Mathematics, and Applied Sciences, as well as for those wishing to extend their education. Formulated around ten key points, this accessible book is light-hearted and illustrative, with many applications. The basis and deployment of the Fourier transform are covered applying real-world examples throughout inductively rather than the theoretical approach deductively.

The key components of the textbook are continuous signals analysis, discrete signals analysis, image processing, applications of Fourier analysis, together with the origin and nature of the transform itself. *D'oh! Fourier* is reproducible via MATLAB/Octave and is supported by a comprehensive website which provides the code contained within the book.

READERSHIP

Aimed at undergraduates with a mathematical background who cover Fourier as part of their undergraduate curriculum. The target curricula include courses on signal processing, communications, speech analysis and understanding, image processing, and computer vision. The book is also aimed at people who are interested in furthering their knowledge on Fourier, for whom maths might be less practiced.

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Mark S Nixon is a Professor in the Vision, Learning and Control research group in the School of Electronics and Computer Science at the University of Southampton, UK. He was also the President of the IEEE Biometrics Council and Vice Chair of the IEEE PSPB. He is a Fellow of the IET, Fellow of the IAPR (for services to biometrics and computer vision) and the Distinguished Fellow of the BMVA 2015. His research interests are in image processing and computer vision and his team develops new techniques for static and moving shape extraction, which have found application in automatic face and automatic gait recognition and in medical image analysis. He has chaired many IEEE/ IAPR conferences, is an Advisory Editor of *Pattern Recognition Letters* and Editorial Board for *IEEE Transactions Biometrics, Behavior and Identity Science*. With Alberto Aguado, he wrote *Feature Extraction and Image Processing for Computer Vision* (Academic Press 4th Ed. 2019), with Rama Chellappa and Tieniu Tan *Human ID by Gait* (Springer 2010), and by himself *Digital Electronics: A Primer* (Imperial College Press 2015).

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