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This monograph contains the author's work of the last four years in discrete and fractional analysis. We introduce the right delta and right nabla fractional calculus on time scales. We continue with the right delta and right nabla discrete fractional calculus in the Caputo sense. Then, we give representation formulae of functions on time scales and we present Ostrowski type inequalities, Landau type inequalities, Gruss type and comparison of means inequalities, all these over the time scales. We continue with integral operator inequalities and their multivariate vectorial versions using convexity of functions, again all these over time scales. It follows the Gruss and Ostrowski type inequalities involving s-convexity of functions; we examine also the general case when we involve several functions. Then, we present general fractional Hermite–Hadamard type inequalities using m-convexity and (s, m)-convexity. Finally, we introduce the reduction method in fractional calculus and study its connection to fractional Ostrowski type inequalities.

This book's results are expected to find applications in many areas of pure and applied mathematics, especially in difference equations and fractional differential equations. The chapters are self-contained and can be read independently, and advanced courses can be taught out of it. It is suitable for researchers, graduate students, and seminars of the above subjects. It serves well as an invaluable resource for all science libraries.

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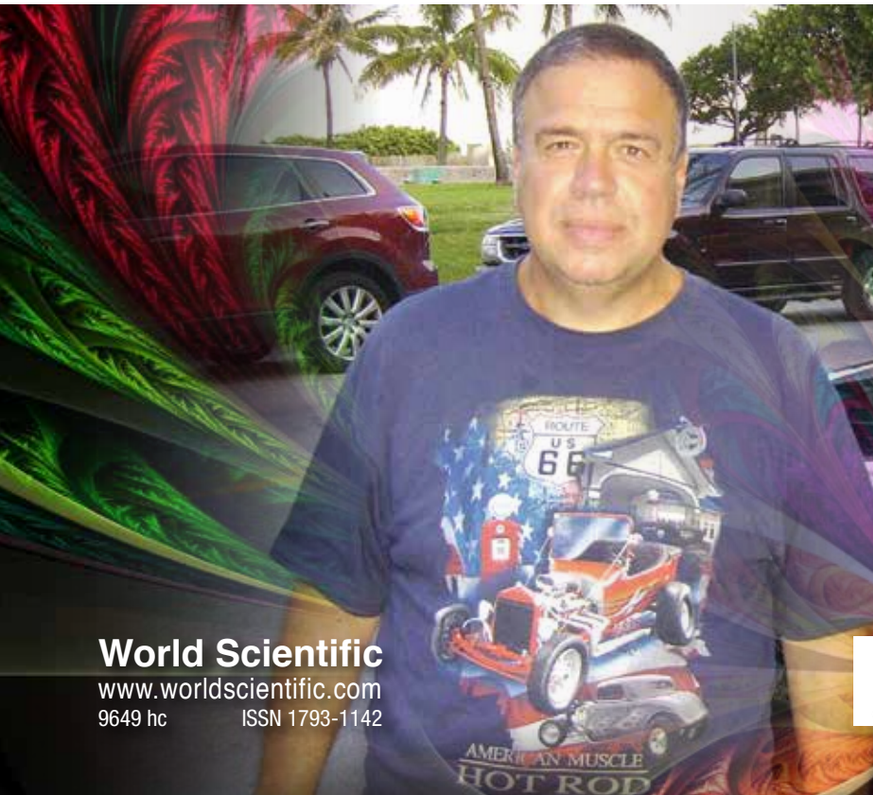

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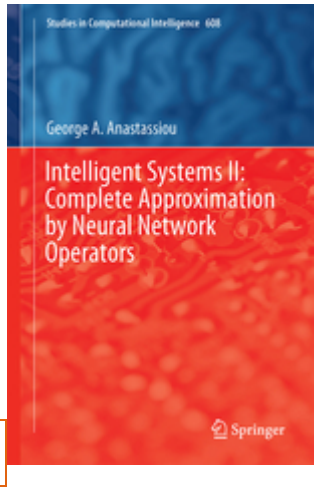

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