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This book presents applications of Newton-like and other similar methods to solve abstract functional equations involving fractional derivatives. It focuses on Banach space-valued functions of a real domain - studied for the first time in the literature. Various issues related to the modeling and analysis of fractional order systems continue to grow in popularity, and the book provides a deeper and more formal analysis of selected issues that are relevant to many areas - including decision-making, complex processes, systems modeling and control - and deeply embedded in the fields of engineering, computer science, physics, economics, and the social and life sciences. The book offers a valuable resource for researchers and graduate students, and can also be used as a textbook for seminars on the above-mentioned subjects. All chapters are self-contained and can be read independently. Further, each includes an extensive list of references.

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