Foreword

Optimization has become a *key technology* in all areas on academicals life and its practical use in real life. In fact, contributions of modern Optimization range from science, engineering, economics, the sectors of finance, energy, environment and ecology to social sciences and emerging *"new frontiers,"* "hard" and "soft" ones combined, with all their challenges. *Optimization* has served and and will further serve *(i)* to represent reality in terms of mathematics and in a way which gives access to modern algorithmical methods and the power of high-performance computers, and *(ii)* to give decision aid to persons and institutions in responsibility for the world of tomorrow. In this respect, *Optimization* has been and will further be witnessing the wealth of life, and survey and select chances for improvements in the technical and economical fields of life, and for improvements of living conditions on earth, in all quantitative and qualitative aspects and respects.

In these years, in addition to the *Calculus* based traditions of *Optimization* which originate from mathematics, physics and mechanics and which are more model-based, *Engineering* has contributed a lot to *Optimization*, too, namely, via *Heuristics* and *Meta-Heuristics*. These approaches are often inspired by nature, especially, by *Biology*, e.g., by *Genetics* and *Population Dynamics*. Herewith, they are often *model-free*, and they aim at learning from nature. By this view and ability to learn and, eventually, to benefit from the "success stories" of nature, *Heuristics* and *Meta Heuristics* have become surprisingly successful. It is subject of present and future research to further rigorously compare the model-free and model-based approaches and to combine, or hybridize, these two traditions fruitfully.

The present book now is a scientific "festival" of *Meta-Heuristics* in *Optimization*, especially, from the applied perspectives of engineering, business, economics and finance. Herewith, it represents state-of-the-art and modern developments as well; by this, the new book establishes a basis for further exchange, the establishment of theoretical foundations and results, by *Optimizers* of different academicals backgrounds, and for joint efforts towards premium science and important applications - for the sake of mankind. Cordial thanks for the editors and publishers of this book who supported and encouraged that future potential and opportunity.

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