

Preface

First application ideas and concepts for cable-driven parallel robots were presented in the late 1980s. Due to the unique properties of these robots, like huge size of the workspace, high payload, and outstanding dynamic capacities, the potential advantages became obvious and successful application projects seemed to be within grasp.

During the following years it became clear that the mechanical simplicity is accompanied by practical issues and theoretical challenges. Accordingly, the realization of applications on a reliable and industrial level did not broadly succeed.

Thanks to extensive research—also massively driven by many of the contributors to this book—in the recent years numerous questions were answered and several prototypes were realized. Even more, projects in close cooperation with industry or directly funded by industrial companies are currently testing cable-driven parallel robots in productive environments and first products are expected soon.

In 2012, leading experts from three continents gathered during the “First International Conference on Cable-Driven Parallel Robots” in Stuttgart, Germany. This conference initiated a forum for the cable robot community that is continued by the “Second International Conference on Cable-Driven Parallel Robots” at the University Duisburg-Essen in 2014. This book summarizes the contributions of the participants of this event.

During the lectures it became obvious that practical investigations as well as the stable and reliable control of cable-driven parallel robots are attracting the focus of research teams around the world. We are sure that this pioneers future applications where cable-driven parallel robots enable outstanding solutions in the domains of logistics, handling, production, maintenance, and physical therapy.

We are most grateful to the authors for their significant contributions, to the reviewers for their careful feedback, and for the support of the scientific committee that enabled this. We also thank the people at Springer for their efficient support and help.

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