

Structural Synthesis Of Parallel Robots

[DOWNLOAD HERE](#)

Preface; Acknowledgements; List of abbreviations and notations; 1 Introduction; 1.1 Robot; 1.2 Robotics; 1.3 Parallel Robot; 1.4 Terminology ; 1.5 Structural synthesis; 1.6 The objectives and originality of this book ; 2 Structural parameters; 2.1 Critical review of mobility calculation ; 2.1.1 Chebychev s contribution; 2.1.2 Sylvester s contribution ; 2.1.3 Grbler s contribution; 2.1.4 Somov s contribution; 2.1.5 Hochman s contribution; 2.1.6 Somov-Malytsheff s formula ; 2.1.7 Koenigs formula; 2.1.8 Kutzbach s mobility equation; 2.1.9 Dobrovolski s mobility equation ; 2.1.10 Contribution of Y.F. Moroskine; 2.1.11 Contribution of R. Voinea and M. Atanasiu ; 2.1.12 Kolchin s mobility equation; 2.1.13 Rssner s contribution ; 2.1.14 Boden s mobility equation; 2.1.15 Manafu s formula ; 2.1.16 Ozol s formula; 2.1.17 Contribution of K. J. Waldron ; 2.1.18 Contribution of N. Manolescu ; 2.1.19 Contribution of C. Bagci; 2.1.20 Contribution of P. Antonescu ; 2.1.21 Contribution of F. Freudenstein and R. Alizade ; 2.1.22 Hunt s contribution ; 2.1.23 Herve s contribution; 2.1.24 Gronowicz s contribution ; 2.1.25 Baker s contribution; 2.1.26 Davies s contribution ; 2.1.27 Contribution of V.P. Agrawal and J.S. Rao ; 2.1.28 Contribution of J. Angeles and C. Gosselin ; 2.1.29 Contribution of F. Dudita and D. Diaconescu ; 2.1.30 Contribution of P. Fanghella and C. Galletti ; 2.1.31 Fayet s contribution ; 2.1.32 Tsai s formula; 2.1.33 McCarthy s formula ; 2.1.34 Contribution of Z. Huang, L.F. Kong and Y.F. Fang ; 2.1.35 Contribution of J.M. Rico, J. Gallardo and B. Ravani ; 2.2 Chebychev-Grbler-Kutzbach s mobility criteria ; 2.2.1 Initial Chebychev-Grbler-Kutzbach s criterion ; 2.2.2 Extended Chebychev-Grbler-Kutzbach s criterion ; 2.2.3 Applicability limitation of Chebychev-Grbler-Kutzbach s criteria; 2.3 Mobility and connectivity of parallel robots ; 2.3.1 General definitions and formulae for mobility and connectivity of mechanisms ; 2.3.2 Mobility and connectivity of simple open kinematic chains ; 2.3.3 Mobility and connectivity of single-loop kinematic chains ; 2.3.4 Connectivity between two elements of a single-loop kinematic chain ; 2.3.5. Mobility and connectivity of parallel robots with simple limbs ; 2.3.6. Mobility and connectivity of parallel robots with complex limbs; 2.3.7. General formulae for robot mobility and connectivity ; 2.4 Overconstraints in parallel robots; 2.5 Redundancy in parallel robots ; 2.6 General formulae for structural parameters; 3 Structural analysis ; 3.1 Simple open kinematic chains; 3.2 Single-loop kinematic chains ;

3.3 Parallel mechanisms with simple limbs ; 3.4 Parallel mechanisms with complex limbs ; 3.5 Other multi-loop kinematic chains ; 4 Kinematic analysis; 4.1. Decoupling in axiomatic design ; 4.2. Geometric modeling; 4.3 Kinematic modeling ; 4.3.1 Direct and inverse kinematics matrices used in Jacobian calculation; 4.3.2 Design and conventional Jacobian matrices ; 4.4 Types of workspaces and singularities ; 4.4.1 Types of workspaces; 4.4.2 Types of singularities ; 4.5. Kinetostatic performance indexes; 4.5.1 Cross-coupling indexes ; 4.5.2 Indexes of input-output propensity ; 4.5.3 Kinetostatic indexes defined in connection with manipulability ellipsoids and polythops; 4.6 Design Jacobian and motion decoupling ; 4.6.1. Parallel robots with coupled motions ; 4.6.2. Parallel robots with decoupled motions ; 4.6.3. Parallel robots with uncoupled motions ; 4.6.4. Maximally regular parallel robots; 5 Structural synthesis ; 5.1 Structural synthesis: a systematic approach in mechanism design ; 5.2. Morphological and evolutionary approaches ; 5.2.1 Morphological approaches ; 5.2.2 Evolutionary algorithms; 5.3 Evolutionary morphology ; 5.3.1 Design objectives; 5.3.2 Constituent elements ; 5.3.3 Morphological operators; 5.3.4 Set of solutions ; 5.3.5 General structure of the evolutionary morphology ; 5.4 General approach of structural synthesis of parallel robots ; 5.4.1 General conditions for str

EAN/ISBN : 9781402057106

Publisher(s): Springer Netherlands Format: ePub/PDF Author(s): Gladwell, G. M.

[DOWNLOAD HERE](#)

Similar manuals:

[Structural Synthesis Of Parallel Robots](#)

[Structural Synthesis Of Parallel Robots](#)

[Structural Synthesis Of Parallel Robots](#)

[Structural Synthesis Of Parallel Robots](#)