# Aki Mikkola

List of Publications by Year
in descending order



| 128 | 1,909 | 279701 | 360920 |
|---|---|---|---|
| papers | citations | 23 h-index | 35 g-index |

| 132 | 132 | 132 | 1075 |
|---|---|---|---|
| all docs | docs citations | times ranked | citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Review on the Absolute Nodal Coordinate Formulation for Large Deformation Analysis of Multibody Systems. Journal of Computational and Nonlinear Dynamics, 2013, 8, . | 0.7 | 131 |
| 2 | A geometrically exact beam element based onÂtheÂabsolute nodal coordinate formulation. Multibody System Dynamics, 2008, 20, 359-384. | 1.7 | 104 |
| 3 | A new locking-free shear deformable finite element based on absolute nodal coordinates. Nonlinear Dynamics, 2007, 50, 249-264. | 2.7 | 90 |
| 4 | Which muscles compromise human locomotor performance with age?. Journal of the Royal Society Interface, 2014, 11, 20140858. | 1.5 | 70 |
| 5 | A new elastohydrodynamic lubricated spherical joint model for rigid-flexible multibody dynamics. Mechanism and Machine Theory, 2017, 107, 210-228. | 2.7 | 56 |
| 6 | Comparison of the absolute nodal coordinate and geometrically exact formulations for beams. Multibody System Dynamics, 2014, 32, 67-85. | 1.7 | 47 |
| 7 | Planetary gear sets power loss modeling: Application to wind turbines. Tribology International, 2017, 105, 42-54. | 3.0 | 42 |
| 8 | Two Simple Triangular Plate Elements Based on the Absolute Nodal Coordinate Formulation. Journal of Computational and Nonlinear Dynamics, 2008, 3, . | 0.7 | 41 |
| 9 | Higher-order beam elements based on the absolute nodal coordinate formulation for three-dimensional elasticity. Nonlinear Dynamics, 2017, 88, 1075-1091. | 2.7 | 38 |
| 10 | A study of moderately thick quadrilateral plate elements based on the absolute nodal coordinate formulation. Multibody System Dynamics, 2014, 31, 309-338. | 1.7 | 36 |
| 11 | Dynamic simulation of a flexible rotor during drop on retainer bearings. Journal of Sound and Vibration, 2007, 306, 601-617. | 2.1 | 35 |
| 12 | Walking and Running Require Greater Effort from the Ankle than the Knee Extensor Muscles. Medicine and Science in Sports and Exercise, 2016, 48, 2181-2189. | 0.2 | 34 |
| 13 | Multibody System Modeling of Leaf Springs. JVC/Journal of Vibration and Control, 2004, 10, 1601-1638. | 1.5 | 33 |
| 14 | A model order reduction method for the simulation of gear contacts based on Arbitrary Lagrangian Eulerian formulation. Computer Methods in Applied Mechanics and Engineering, 2018, 338, 68-96. | 3.4 | 32 |
| 15 | Simple and Versatile Dynamic Model of Spherical Roller Bearing. International Journal of Rotating Machinery, 2013, 2013, 1-13. | 0.8 | 31 |
| 16 | Active magnetic bearing-supported rotor with misaligned cageless backup bearings: A dropdown event simulation model. Mechanical Systems and Signal Processing, 2015, 50-51, 692-705. | 4.4 | 31 |
| 17 | Computationally efficient approach for simulation of multibody and hydraulic dynamics. Mechanism and Machine Theory, 2018, 130, 435-446. | 2.7 | 30 |
| 18 | Comparison between ANCF and B-spline surfaces. Multibody System Dynamics, 2013, 30, 119-138. | 1.7 | 29 |

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|---|---|---|---|
| 19 | Ball bearing model performance on various sized rotors with and without centrifugal and gyroscopic forces. Mechanism and Machine Theory, 2015, 90, 240-260. | 2.7 | 29 |
| 20 | Flexible multibody approach in forward dynamic simulation of locomotive strains in human skeleton withÂflexible lower body bones. Multibody System Dynamics, 2011, 25, 395-409. | 1.7 | 27 |
| 21 | Enhanced sludge dewatering based on the application of high-power ultrasonic vibration. Ultrasonics, 2018, 84, 438-445. | 2.1 | 26 |
| 22 | Merge of motion analysis, multibody dynamics and finite element method for the subject-specific analysis of cartilage loading patterns during gait: differences between rotation and moment-driven models of human knee joint. Multibody System Dynamics, 2016, 37, 271-290. | 1.7 | 25 |
| 23 | Three new triangular shell elements of ANCF represented by BÃ©zier triangles. Multibody System Dynamics, 2015, 35, 321-351. | 1.7 | 24 |
| 24 | Tree-topology-oriented modeling for the real-time simulation of sedan vehicle dynamics using independent coordinates and the rod-removal technique. Mechanism and Machine Theory, 2020, 143, 103626. | 2.7 | 24 |
| 25 | Automated Excavator Based on Reinforcement Learning and Multibody System Dynamics. IEEE Access, 2020, 8, 213998-214006. | 2.6 | 23 |
| 26 | Efficiency comparison of various friction models of a hydraulic cylinder in the framework of multibody system dynamics. Nonlinear Dynamics, 2021, 104, 3497-3515. | 2.7 | 23 |
| 27 | Inertia forces and shape integrals in the floating frame of reference formulation. Nonlinear Dynamics, 2017, 88, 1953-1968. | 2.7 | 22 |
| 28 | On the cosimulation of multibody systems and hydraulic dynamics. Multibody System Dynamics, 2020, 50, 143-167. | 1.7 | 22 |
| 29 | Beam Elements with Trapezoidal Cross Section Deformation Modes Based on the Absolute Nodal Coordinate Formulation. AIP Conference Proceedings, 2010, , . | 0.3 | 21 |
| 30 | Behavior of thin rectangular ANCF shell elements in various mesh configurations. Nonlinear Dynamics, 2014, 78, 1277-1291. | 2.7 | 21 |
| 31 | Experimental validation of flexible multibody dynamics beam formulations. Multibody System Dynamics, 2015, 34, 373-389. | 1.7 | 21 |
| 32 | Combined semi-recursive formulation and lumped fluid method for monolithic simulation of multibody and hydraulic dynamics. Multibody System Dynamics, 2018, 44, 293-311. | 1.7 | 21 |
| 33 | An efficient multibody dynamic model of three-dimensional meshing contacts in helical gear-shaft system and its solution. Mechanism and Machine Theory, 2019, 142, 103607. | 2.7 | 20 |
| 34 | Deformable Terrain Model for the Real-Time Multibody Simulation of a Tractor With a Hydraulically Driven Front-Loader. IEEE Access, 2019, 7, 172694-172708. | 2.6 | 20 |
| 35 | The validation of a semi-recursive vehicle dynamics model for a real-time simulation. Mechanism and Machine Theory, 2020, 151, 103907. | 2.7 | 20 |
| 36 | Dynamic analysis of rotating shafts using the absolute nodal coordinate formulation. Journal of Sound and Vibration, 2019, 453, 214-236. | 2.1 | 19 |

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| 37 | A touchdown bearing with surface waviness: Friction loss analysis. Mechanism and Machine Theory, 2017, 110, 73-84. | 2.7 | 18 |
| 38 | A study of contact methods in the application of large deformation dynamics in self-contact beam. Nonlinear Dynamics, 2021, 103, 581-616. | 2.7 | 18 |
| 39 | Vibration analysis of paper machineâ€™s asymmetric tube roll supported by spherical roller bearings. Mechanical Systems and Signal Processing, 2018, 104, 688-704. | 4.4 | 18 |
| 40 | A formal procedure and invariants of a transition fromÂconventional finite elements to the absolute nodal coordinate formulation. Multibody System Dynamics, 2009, 22, 323-339. | 1.7 | 17 |
| 41 | Efficient coupling of multibody software with numerical computing environments and block diagram simulators. Multibody System Dynamics, 2010, 24, 237-253. | 1.7 | 17 |
| 42 | Data-driven simulation for general-purpose multibody dynamics using Deep Neural Networks. Multibody System Dynamics, 2021, 51, 419-454. | 1.7 | 17 |
| 43 | Models for dynamic analysis of backup ball bearings of an AMB-system. Mechanical Systems and Signal Processing, 2017, 95, 324-344. | 4.4 | 16 |
| 44 | Iterative refinement algorithm for efficient velocities and accelerations solutions in closed-loop multibody dynamics. Mechanical Systems and Signal Processing, 2021, 152, 107463. | 4.4 | 16 |
| 45 | Electromagnetic and mechanical design aspects of a high-speed solid-rotor induction machine with no separate copper electric circuit in the megawatt range. Electrical Engineering, 2009, 91, 35-49. | 1.2 | 15 |
| 46 | Flexible multibody modeling of reeving systems including transverse vibrations. Multibody System Dynamics, 2018, 44, 107-133. | 1.7 | 15 |
| 47 | Extended Digital Nomenclature Code for Description of Complex Finite Elements and Generation of New Elements. Mechanics Based Design of Structures and Machines, 2011, 39, 229-252. | 3.4 | 14 |
| 48 | Accurate real-time truck simulation via semirecursive formulation and Adamsâ€“Bashforthâ€“Moulton algorithm. Acta Mechanica Sinica/Lixue Xuebao, 2019, 35, 641-652. | 1.5 | 14 |
| 49 | Numerical Treatment of Singularity in Hydraulic Circuits Using Singular Perturbation Theory. IEEE/ASME Transactions on Mechatronics, 2019, 24, 144-153. | 3.7 | 14 |
| 50 | Comparing double-step and penalty-based semirecursive formulations for hydraulically actuated multibody systems in a monolithic approach. Multibody System Dynamics, 2021, 52, 169-191. | 1.7 | 14 |
| 51 | Estimating the Characteristic Curve of a Directional Control Valve in a Combined Multibody and Hydraulic System Using an Augmented Discrete Extended Kalman Filter. Sensors, 2021, 21, 5029. | 2.1 | 14 |
| 52 | Dynamic Analysis of Rotor System With Misaligned Retainer Bearings. Journal of Tribology, 2008, 130, . | 1.0 | 13 |
| 53 | Real-time multibody application for tree harvester truck simulator. Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, 2014, 228, 182-198. | 0.5 | 13 |
| 54 | State estimator based on an indirect Kalman filter for a hydraulically actuated multibody system. Multibody System Dynamics, 2022, 54, 373-398. | 1.7 | 13 |

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|---|---|---|---|
| 55 | Physics-Based Digital Twins Merging With Machines: Cases of Mobile Log Crane and Rotating Machine. IEEE Access, 2022, 10, 45962-45978. | 2.6 | 13 |
| 56 | Performance review of locking alleviation methods for continuum ANCF beam elements. Nonlinear Dynamics, 2022, 109, 531-546. | 2.7 | 12 |
| 57 | Electric Vehicle Energy Consumption Simulation by Modeling the Efficiency of Driveline Components. SAE International Journal of Commercial Vehicles, 0, 9, 31-39. | 0.4 | 11 |
| 58 | Analysis of high-order quadrilateral plate elements based on the absolute nodal coordinate formulation for three-dimensional elasticity. Advances in Mechanical Engineering, 2017, 9, 168781401770506. | 0.8 | 11 |
| 59 | Equivalence of Lagrangeâ€™s equations for non-material volume and the principle of virtual work in ALE formulation. Acta Mechanica, 2020, 231, 1141-1157. | 1.1 | 11 |
| 60 | Ankle and knee extensor muscle effort during locomotion in young and older athletes: Implications for understanding age-related locomotor decline. Scientific Reports, 2020, 10, 2801. | 1.6 | 11 |
| 61 | Lightweight stator structure for a large diameter directâ€drive permanent magnet synchronous generator intended for wind turbines. IET Renewable Power Generation, 2015, 9, 711-719. | 1.7 | 10 |
| 62 | The Benefits and Impact of Digital Twins in Product Development Phase of PLM. IFIP Advances in Information and Communication Technology, 2018, , 432-441. | 0.5 | 10 |
| 63 | Separation efficiency and ice strength properties in simulated natural freezing of aqueous solutions. Cold Regions Science and Technology, 2019, 158, 18-29. | 1.6 | 10 |
| 64 | Targeting the user experience in the development of mobile machinery using real-time multibody simulation. Advances in Mechanical Engineering, 2020, 12, 168781402092317. | 0.8 | 10 |
| 65 | Real-Time Multibody Model-Based Heads-Up Display Unit of a Tractor. IEEE Access, 2021, 9, 57645-57657. | 2.6 | 10 |
| 66 | Purity and mechanical strength of naturally frozen ice in wastewater basins. Water Research, 2018, 145, 418-428. | 5.3 | 9 |
| 67 | Impurity separation efficiency of multi-component wastewater in a pilot-scale freeze crystallizer. Separation and Purification Technology, 2020, 236, 116271. | 3.9 | 9 |
| 68 | Conjugate heat transfer in isolated granular clusters with interstitial fluid using lattice Boltzmann method. International Journal of Heat and Mass Transfer, 2022, 187, 122539. | 2.5 | 9 |
| 69 | Inclusion of Transverse Shear Deformation in a Beam Element Based on the Absolute Nodal Coordinate Formulation. Journal of Computational and Nonlinear Dynamics, 2009, 4, . | 0.7 | 8 |
| 70 | A thin plate element based on the combined arbitrary Lagrangeâ€“Euler and absolute nodal coordinate formulations. Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, 2013, 227, 211-219. | 0.5 | 7 |
| 71 | On the dynamic analysis of rotating shafts using nonlinear superelement and absolute nodal coordinate formulations. Advances in Mechanical Engineering, 2017, 9, 168781401773267. | 0.8 | 7 |
| 72 | Gamification Procedure Based on Real-Time Multibody Simulation. International Review on Modelling and Simulations, 2018, 11, 259. | 0.2 | 7 |

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| 73 | An Overview of Higher-Order Beam Elements Based on the Absolute Nodal Coordinate Formulation. Journal of Computational and Nonlinear Dynamics, 2022, 17, . | 0.7 | 7 |
| 74 | State Estimation in a Hydraulically Actuated Log Crane Using Unscented Kalman Filter. IEEE Access, 2022, 10, 62863-62878. | 2.6 | 7 |
| 75 | The Simplest 3- and 4-Noded Fully-Parameterized ANCF Plate Elements. , 2012, , . | | 6 |
| 76 | Transmission configuration effect on total efficiency of Electric Vehicle powertrain. , 2014, , . | | 6 |
| 77 | Modeling and Dynamic Analysis of Spherical Roller Bearing with Localized Defects: Analytical Formulation to Calculate Defect Depth and Stiffness. Shock and Vibration, 2016, 2016, 1-11. | 0.3 | 6 |
| 78 | A Methodology for Product Development in Mobile Machinery: Case Example of an Excavator. Machines, 2019, 7, 70. | 1.2 | 6 |
| 79 | Pilot study on proximal femur strains during locomotion and fall-down scenario. Multibody System Dynamics, 2012, 28, 239-256. | 1.7 | 5 |
| 80 | Experimental verification of a dynamic model of a tube roll in terms of subcritical superharmonic vibrations. Mechanism and Machine Theory, 2013, 64, 53-66. | 2.7 | 5 |
| 81 | The explanation of two semi-recursive multibody methods for educational purpose. Mechanism and Machine Theory, 2022, 175, 104935. | 2.7 | 5 |
| 82 | Large Deformation Triangular Plate Elements for Multibody Problems. , 2007, , . | | 4 |
| 83 | A simple mechanical model for simulating cross-country skiing, skating technique. Sports Engineering, 2016, 19, 91-104. | 0.5 | 4 |
| 84 | An Efficient High-Order Time-Step Algorithm With Proportional-Integral Control Strategy for Semirecursive Vehicle Dynamics. IEEE Access, 2019, 7, 40833-40842. | 2.6 | 4 |
| 85 | Measurement and evaluation of natural frequencies of bulk ice plate using Scanning Laser Doppler Vibrometer. Measurement: Journal of the International Measurement Confederation, 2020, 150, 107091. | 2.5 | 4 |
| 86 | Real-Time Simulation of Fluid Power Systems Containing Small Oil Volumes, Using the Method of Multiple Scales. IEEE Access, 2020, 8, 196940-196950. | 2.6 | 4 |
| 87 | Crane Operators Training Based on the Real-Time Multibody Simulation. , 2013, , 213-229. | | 4 |
| 88 | Applying ultrasound plus electrokinetics to enhance sludge dewatering. Drying Technology, 2022, 40, 2990-3002. | 1.7 | 4 |
| 89 | Comparison of numerical and computational aspects between two constraint-based contact methods in the description of wheel/rail contacts. Multibody System Dynamics, 2022, 54, 303-344. | 1.7 | 4 |
| 90 | Layered Sheet-Steel Damping Estimation Using Optical Vibrometry. , 2015, , . | | 3 |

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| 91 | Higher-Order Plate Elements for Large Deformation Analysis in Multibody Applications. , 2016, , . | | 3 |
| 92 | A touchdown bearing with surface waviness: A dynamic model using a multibody approach. Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, 2017, 231, 658-669. | 0.5 | 3 |
| 93 | Shear Correction for Thin Plate Finite Elements Based on the Absolute Nodal Coordinate Formulation. , 2009, , . | | 2 |
| 94 | The use of the flexible multibody approach for lower body skeletal loading analysis. Procedia IUTAM, 2011, 2, 93-100. | 1.2 | 2 |
| 95 | Preface for the special issue: IMSD. Multibody System Dynamics, 2012, 27, 1-2. | 1.7 | 2 |
| 96 | Helix beam model of a coil spring including twisting effect to capture lateral deformation. International Journal of Precision Engineering and Manufacturing, 2013, 14, 1615-1622. | 1.1 | 2 |
| 97 | Twice-Running-Speed Resonances of a Paper Machine Tube Roll Supported by Spherical Roller Bearings: Analysis and Comparison With Experiments. , 2014, , . | | 2 |
| 98 | Simulation Environment for the Real-Time Dynamic Analysis of Hybrid Mobile Machines. , 2015, , . | | 2 |
| 99 | Semantic restrictions and rules in applications of multibody dynamics. Engineering With Computers, 2015, 31, 85-97. | 3.5 | 2 |
| 100 | Real-time analysis of mobile machines using sparse matrix technique. Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, 2016, 230, 615-625. | 0.5 | 2 |
| 101 | Cone complementarity approach for dynamic analysis of multiple pendulums. Advances in Mechanical Engineering, 2019, 11, 168781401985674. | 0.8 | 2 |
| 102 | Procedure for non-smooth contact for planar flexible beams with cone complementarity problem. Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, 2021, 235, 179-196. | 0.5 | 2 |
| 103 | Gamification and the marketing of agricultural machinery. , 2021, , 77-89. | | 2 |
| 104 | A Procedure for the Inclusion of Transverse Shear Deformation in a Beam Element Based on the Absolute Nodal Coordinate Formulation. , 2007, , . | | 2 |
| 105 | Multi-Body Simulation Based Development Environment for Hybrid Working Machines. International Review on Modelling and Simulations, 2015, 8, 466. | 0.2 | 2 |
| 106 | Rod-removal technique for flexible-rods in the framework of semi-recursive multibody formulation. Mechanism and Machine Theory, 2022, 169, 104625. | 2.7 | 2 |
| 107 | A Reduced and Linearized High Fidelity Waveboard Multibody Model for Stability Analysis. Journal of Computational and Nonlinear Dynamics, 2022, 17, . | 0.7 | 2 |
| 108 | Determining the State of a Nonlinear Flexible Multibody System Using an Unscented Kalman Filter. IEEE Access, 2022, 10, 40237-40248. | 2.6 | 2 |

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| 109 | Analysis of electromechanical systems based on the absolute nodal coordinate formulation. Acta Mechanica, 2022, 233, 1019-1030. | 1.1 | 2 |
| 110 | Numerical analysis of the magnetic shape memory effect based on the absolute nodal coordinate formulation. Acta Mechanica, 0, , 1. | 1.1 | 2 |
| 111 | Comparison of Ball Bearing Model Performance With and Without Centrifugal and Gyroscopic Forces. , 2014, , . | | 1 |
| 112 | The Value of Digital Twins and IoT Based Services in Creating Lifecycle Value in B2B Manufacturing Companies. , 2019, , . | | 1 |
| 113 | Creating value with sustainable production based on real-time simulation. , 2021, , 1-9. | | 1 |
| 114 | A Simple Multibody Dynamic Model of Cross-Country Ski-Skating. , 2013, , . | | 1 |
| 115 | Using the Simulation Model for Predicting Fatigue Stresses of a Log Crane. , 0, , . | | 0 |
| 116 | Multibody Approach for Model-Based Fault Detection of a Reel. Journal of Computational and Nonlinear Dynamics, 2006, 1, 116-122. | 0.7 | 0 |
| 117 | Non-Linear Strain Description for Two-Dimensional Shear Deformable Beam Element Based on the Absolute Nodal Coordinate Formulation. , 2009, , . | | 0 |
| 118 | A Dynamic Simulation of a Human Gait Using the Hybrid Muscle Model and a QCT-Based Flexible Tibia. , 2009, , . | | 0 |
| 119 | Generation of Matrices of a Finite Element by its Code dncm. , 2010, , . | | 0 |
| 120 | On Pure-Bending Non-Linear Plate Elements With Developable Surfaces. , 2011, , . | | 0 |
| 121 | Experimental Validation of Flexible Multibody Dynamics Beam Formulations. , 2013, , . | | 0 |
| 122 | Stresses of an AMB-Supported Rotor Arising From the Sudden Contact With Backup Bearings. , 2015, , . | | 0 |
| 123 | A Simple Mechanical Model for Simulating Cross-Country Skiing Propulsive Force. , 2015, , . | | 0 |
| 124 | Generation of matrices of an arbitrary finite element by its digital nomenclature code dncm. , 2015, , . | | 0 |
| 125 | Spherical Roller Bearing Simulation Model with Localized Defects. Mechanisms and Machine Science, 2015, , 1899-1909. | 0.3 | 0 |
| 126 | Dynamic Response of a Lightweight Stator Structure for a Large Diameter Direct-Drive Wind Turbine Generator. Mechanisms and Machine Science, 2019, , 503-517. | 0.3 | 0 |

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| 127 | A Formal Text Description of Mechanisms for Their Automated Synthesis. , 2014, , . | | 0 |
| 128 | A Contact Event Model for an AMB-supported Rotor. Mechanisms and Machine Science, 2015, , 1513-1523. | 0.3 | 0 |