

# Stephen L Campbell

## List of Publications by Year in descending order

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135  
papers

3,526  
citations

201674

27  
h-index

223800

46  
g-index

145  
all docs

145  
docs citations

145  
times ranked

1010  
citing authors

| #  | ARTICLE  | IF  | CITATIONS |
|----|--|-----|-----------|
| 1  | The index of general nonlinear DAEs. <i>Numerische Mathematik</i> , 1995, 72, 173-196.   | 1.9 | 244       |
| 2  | Applications of the Drazin Inverse to Linear Systems of Differential Equations with Singular Constant Coefficients. <i>SIAM Journal on Applied Mathematics</i> , 1976, 31, 411-425.    | 1.8 | 221       |
| 3  | Auxiliary Signal Design for Failure Detection. , 2004, , .   |     | 114       |
| 4  | A General Form for Solvable Linear Time Varying Singular Systems of Differential Equations. <i>SIAM Journal on Mathematical Analysis</i> , 1987, 18, 1101-1115.                        | 1.9 | 112       |
| 5  | Solvability of General Differential Algebraic Equations. <i>SIAM Journal of Scientific Computing</i> , 1995, 16, 257-270.  | 2.8 | 103       |
| 6  | Singular linear systems of differential equations with delays. <i>Applicable Analysis</i> , 1980, 11, 129-136.   | 1.3 | 102       |
| 7  | Singular Perturbation of Autonomous Linear Systems. <i>SIAM Journal on Mathematical Analysis</i> , 1979, 10, 542-551.  | 1.9 | 92        |
| 8  | Canonical Forms and Solvable Singular Systems of Differential Equations. <i>SIAM Journal on Algebraic and Discrete Methods</i> , 1983, 4, 517-521.                                     | 0.8 | 87        |
| 9  | Duality, observability, and controllability for linear time-varying descriptor systems. <i>Circuits, Systems, and Signal Processing</i> , 1991, 10, 455-470.                           | 2.0 | 78        |
| 10 | The Drazin inverse and systems of second order linear differential equations. <i>Linear and Multilinear Algebra</i> , 1983, 14, 195-198.   | 1.0 | 70        |
| 11 | Auxiliary signal design for active failure detection in uncertain linear systems with a priori information. <i>Automatica</i> , 2006, 42, 219-228.                                     | 5.0 | 65        |
| 12 | Continuity properties of the Drazin pseudoinverse. <i>Linear Algebra and Its Applications</i> , 1975, 10, 77-83.   | 0.9 | 60        |
| 13 | Active Robust Fault Detection in Closed-Loop Systems: Quadratic Optimization Approach. <i>IEEE Transactions on Automatic Control</i> , 2012, 57, 2532-2544.                            | 5.7 | 60        |
| 14 | The Numerical Solution of Higher Index Linear Time Varying Singular Systems of Differential Equations. <i>SIAM Journal on Scientific and Statistical Computing</i> , 1985, 6, 334-348. | 1.5 | 58        |
| 15 | High-Index Differential Algebraic Equations. <i>Mechanics Based Design of Structures and Machines</i> , 1995, 23, 199-222.   | 0.6 | 53        |
| 16 | The Index of an Infinite Dimensional Implicit System. <i>Mathematical and Computer Modelling of Dynamical Systems</i> , 1999, 5, 18-42.  | 2.2 | 49        |
| 17 | Linearization of DAEs along trajectories. <i>Zeitschrift Fur Angewandte Mathematik Und Physik</i> , 1995, 46, 70-84.   | 1.4 | 47        |
| 18 | Effects of feedback on active fault detection. <i>Automatica</i> , 2012, 48, 866-872.  | 5.0 | 44        |

| #  | ARTICLE  | IF  | CITATIONS |
|----|--|-----|-----------|
| 19 | Observability of Linear Time-Varying Descriptor Systems. SIAM Journal on Matrix Analysis and Applications, 1991, 12, 484-496.  | 1.4 | 43        |
| 20 | Least squares completions for nonlinear differential algebraic equations. Numerische Mathematik, 1993, 65, 77-94.  | 1.9 | 42        |
| 21 | Stability criteria for differential-algebraic equations with multiple delays and their numerical solutions. Applied Mathematics and Computation, 2009, 208, 397-415.   | 2.2 | 38        |
| 22 | EP Operators and Generalized Inverses. Canadian Mathematical Bulletin, 1975, 18, 327-333.  | 0.5 | 37        |
| 23 | Active fault detection in nonlinear systems using auxiliary signals. , 2008, , .   |     | 37        |
| 24 | Modeling and Simulation in Scilab/Scicos with ScicosLab 4.4. , 2010, , .   |     | 36        |
| 25 | Constraint preserving integrators for general nonlinear higher index DAEs. Numerische Mathematik, 1995, 69, 383-399.   | 1.9 | 33        |
| 26 | DAEs arising from traveling wave solutions of PDEs. Journal of Computational and Applied Mathematics, 1997, 82, 41-58.   | 2.0 | 33        |
| 27 | Compensating for order variation in mesh refinement for direct transcription methods. Journal of Computational and Applied Mathematics, 2000, 125, 147-158.            | 2.0 | 33        |
| 28 | Auxiliary signal design for robust active fault detection of linear discrete-time systems. Automatica, 2011, 47, 1887-1895.  | 5.0 | 33        |
| 29 | Regularizations of linear time varying singular systems. Automatica, 1984, 20, 365-370.  | 5.0 | 28        |
| 30 | Uniqueness of completions for linear time varying differential algebraic equations. Linear Algebra and Its Applications, 1992, 161, 55-67.                             | 0.9 | 28        |
| 31 | Optimal Control of Autonomous Linear Processes with Singular Matrices in the Quadratic Cost Functional. SIAM Journal on Control and Optimization, 1976, 14, 1092-1106. | 2.1 | 27        |
| 32 | Singular perturbation of autonomous linear systems, II. Journal of Differential Equations, 1978, 29, 362-373.  | 2.2 | 27        |
| 33 | A second order singular linear system arising in electric power systems analysis. International Journal of Systems Science, 1982, 13, 101-108.                         | 5.5 | 27        |
| 34 | Differentiation of Constraints in Differential-Algebraic Equations. Mechanics Based Design of Structures and Machines, 1991, 19, 19-39.                                | 0.6 | 27        |
| 35 | On singular equilibria of index-1 DAEs. Circuits, Systems, and Signal Processing, 2000, 19, 131-157.   | 2.0 | 27        |
| 36 | One canonical form for higher-index linear time-varying singular systems. Circuits, Systems, and Signal Processing, 1983, 2, 311-326.                                  | 2.0 | 25        |

| #  | ARTICLE   | IF  | CITATIONS |
|----|---|-----|-----------|
| 37 | Computing nonnegative rank factorizations. <i>Linear Algebra and Its Applications</i> , 1981, 35, 175-182.  | 0.9 | 22        |
| 38 | Linear Systems of Differential Equations with Singular Coefficients. <i>SIAM Journal on Mathematical Analysis</i> , 1977, 8, 1057-1066.   | 1.9 | 20        |
| 39 | Nonregular Singular Dynamic Leontief Systems. <i>Econometrica</i> , 1979, 47, 1565.   | 4.2 | 19        |
| 40 | DAEs arising from traveling wave solutions of PDEs II. <i>Computers and Mathematics With Applications</i> , 1999, 37, 15-34.  | 2.7 | 19        |
| 41 | Index Two Linear Time-Varying Singular Systems of Differential Equations. <i>SIAM Journal on Algebraic and Discrete Methods</i> , 1983, 4, 237-243.   | 0.8 | 18        |
| 42 | Some comments on DAE theory for IRK methods and trajectory optimization. <i>Journal of Computational and Applied Mathematics</i> , 2000, 120, 109-131.  | 2.0 | 18        |
| 43 | On continuity of the Moore-Penrose and Drazin generalized inverses. <i>Linear Algebra and Its Applications</i> , 1977, 18, 53-57.   | 0.9 | 17        |
| 44 | Weak Drazin inverses. <i>Linear Algebra and Its Applications</i> , 1978, 20, 167-178.   | 0.9 | 17        |
| 45 | Progress on a general numerical method for nonlinear higher index DAEs II. <i>Circuits, Systems, and Signal Processing</i> , 1994, 13, 123-138.   | 2.0 | 17        |
| 46 | Differentiation of the Drazin Inverse. <i>SIAM Journal on Applied Mathematics</i> , 1976, 30, 703-707.  | 1.8 | 15        |
| 47 | Continuity of The Drazin inverse. <i>Linear and Multilinear Algebra</i> , 1980, 8, 265-268.   | 1.0 | 15        |
| 48 | Completions of implicitly defined linear time varying vector fields. <i>Linear Algebra and Its Applications</i> , 2009, 431, 1422-1438.   | 0.9 | 15        |
| 49 | Chapter 2: Regularization of Linear and Nonlinear Descriptor Systems. , 2012, , 17-36.  |     | 15        |
| 50 | Solving optimal control problems with control delays using direct transcription. <i>Applied Numerical Mathematics</i> , 2016, 108, 185-203.   | 2.1 | 15        |
| 51 | Reliable $H_\infty$ control on saturated linear Markov jump system with uncertain transition rates and asynchronous jumped actuator failure. <i>Journal of the Franklin Institute</i> , 2018, 355, 3853-3872. | 3.4 | 15        |
| 52 | Linear operators for which $T^{\hat{A}}$ and $TT^{\hat{A}}$ commute. II. <i>Pacific Journal of Mathematics</i> , 1974, 53, 355-361.   | 0.5 | 15        |
| 53 | Comments on 2-D descriptor systems. <i>Automatica</i> , 1991, 27, 189-192.  | 5.0 | 14        |
| 54 | Numerically constructible observers for linear time-varying descriptor systems. <i>Automatica</i> , 2001, 37, 445-452.  | 5.0 | 14        |

| #  | ARTICLE  | IF  | CITATIONS |
|----|--|-----|-----------|
| 55 | Direct transcription solution of high index optimal control problems and regular Euler-Lagrange equations. <i>Journal of Computational and Applied Mathematics</i> , 2007, 202, 186-202.                                       | 2.0 | 14        |
| 56 | Limit behavior of solutions of singular difference equations. <i>Linear Algebra and Its Applications</i> , 1979, 23, 167-178.  | 0.9 | 13        |
| 57 | Comment on controlling generalized state-space (descriptor) systems. <i>International Journal of Control</i> , 1987, 46, 2229-2230.  | 1.9 | 13        |
| 58 | Optimal control software for constrained nonlinear systems with delays. , 2011, , .  |     | 13        |
| 59 | Order and the index of singular time-invariant linear systems. <i>Systems and Control Letters</i> , 1981, 1, 119-122.  | 2.3 | 12        |
| 60 | Nonregular 2D descriptor delay systems. <i>IMA Journal of Mathematical Control and Information</i> , 1995, 12, 57-67.  | 1.7 | 12        |
| 61 | Completions of nonlinear DAE flows based on index reduction techniques and their stabilization. <i>Journal of Computational and Applied Mathematics</i> , 2009, 233, 1021-1034.  | 2.0 | 12        |
| 62 | Rapid Model Selection and the Separability Index. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 2000, 33, 1151-1156.  | 0.4 | 11        |
| 63 | The Drazin Inverse of an Infinite Matrix. <i>SIAM Journal on Applied Mathematics</i> , 1976, 31, 492-503.  | 1.8 | 10        |
| 64 | Consistent initial conditions for singular nonlinear systems. <i>Circuits, Systems, and Signal Processing</i> , 1983, 2, 45-55.  | 2.0 | 10        |
| 65 | Mixed symbolic-numerical computations with general DAEs II: An applications case study. <i>Numerical Algorithms</i> , 1998, 19, 85-94.   | 1.9 | 10        |
| 66 | The additional dynamics of least squares completions for linear differential algebraic equations. <i>Linear Algebra and Its Applications</i> , 2007, 425, 471-485.   | 0.9 | 10        |
| 67 | Solving higher index DAE optimal control problems. <i>Numerical Algebra, Control and Optimization</i> , 2016, 6, 447-472.  | 1.6 | 10        |
| 68 | Optimal control of discrete linear processes with quadratic cost. <i>International Journal of Systems Science</i> , 1978, 9, 841-847.  | 5.5 | 9         |
| 69 | Full order observers for linear DAEs. , 2011, , .  |     | 9         |
| 70 | Decentralized Observer-Based Reliable Control for a Class of Interconnected Markov Jumped Time-Delay System Subject to Actuator Saturation and Failure. <i>Circuits, Systems, and Signal Processing</i> , 2018, 37, 4728-4752. | 2.0 | 9         |
| 71 | Index two linear time varying singular systems of differential equations. <i>Circuits, Systems, and Signal Processing</i> , 1986, 5, 97-107.   | 2.0 | 8         |
| 72 | Control problem structure and the numerical solution of linear singular systems. <i>Mathematics of Control, Signals, and Systems</i> , 1988, 1, 73-87.   | 2.3 | 8         |

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|----|--|-----|-----------|
| 73 | Jacobian reuse in explicit integrators for higher index DAEs. Applied Numerical Mathematics, 1997, 25, 391-412.  | 2.1 | 8         |
| 74 | Maximally reduced observers for linear time varying DAEs. , 2011, , .  |     | 8         |
| 75 | Direct optimization determination of auxiliary test signals for linear problems with model uncertainty. , 2011, , .  |     | 8         |
| 76 | A minimal norm corrected underdetermined Gauss-Newton procedure. Applied Numerical Mathematics, 2012, 62, 592-605.   | 2.1 | 8         |
| 77 | Linear operators for which $T\hat{A}-T$ and $T\hat{A}+T$ commute. III. Pacific Journal of Mathematics, 1978, 76, 17-19.  | 0.5 | 8         |
| 78 | On positive controllers and linear quadratic optimal control problems. International Journal of Control, 1982, 36, 885-888.  | 1.9 | 7         |
| 79 | Behavior of the nonunique terms in general DAE integrators. Applied Numerical Mathematics, 1998, 28, 209-226.  | 2.1 | 7         |
| 80 | Lobatto IIIA methods, direct transcription, and DAEs with delays. Numerical Algorithms, 2015, 69, 291-300.   | 1.9 | 7         |
| 81 | Auxiliary signal design for failure detection in differential-algebraic equations. Numerical Algebra, Control and Optimization, 2014, 4, 151-179.                  | 1.6 | 7         |
| 82 | Nonlinear time-varying generalized state-space systems: An overview. , 1984, , .   |     | 6         |
| 83 | Explicit formulae for completions of linear time varying singular systems of differential equations. Circuits, Systems, and Signal Processing, 1994, 13, 185-199.  | 2.0 | 6         |
| 84 | A comparison of optimal and suboptimal auxiliary signal design approaches for robust failure detection. , 0, , .   |     | 6         |
| 85 | Comments on direct transcription solution of DAE constrained optimal control problems with two discretization approaches. Numerical Algorithms, 2016, 73, 807-838. | 1.9 | 6         |
| 86 | Operator-valued inner functions analytic on the closed disc. Pacific Journal of Mathematics, 1972, 41, 57-62.  | 0.5 | 6         |
| 87 | Initial guess sensitivity in computational optimal control problems. Numerical Algebra, Control and Optimization, 2020, 10, 39-41.                                 | 1.6 | 6         |
| 88 | On an assumption guaranteeing boundary layer convergence of singularly perturbed systems. Automatica, 1981, 17, 645-646.   | 5.0 | 5         |
| 89 | Local realizations of time varying descriptor systems. , 1987, , .   |     | 5         |
| 90 | Auxiliary signal design for failure detection in high index differential-algebraic equations. , 2014, , .  |     | 5         |

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|-----|---|-----|-----------|
| 91  | Differential-algebraic equations. Scholarpedia Journal, 2008, 3, 2849.  | 0.3 | 5         |
| 92  | Countability of Sets. American Mathematical Monthly, 1986, 93, 480-481.   | 0.3 | 4         |
| 93  | The Numerical Solution of Singular Systems Arising in Control Problems. , 1989, , .   |     | 4         |
| 94  | Adjoint estimation using direct transcription multipliers: compressed trapezoidal method. Optimization and Engineering, 2008, 9, 291-305.   | 2.4 | 4         |
| 95  | Asymptotic behavior and solution approximation of Active Robust fault detection for closed-loop systems. , 2009, , .  |     | 4         |
| 96  | Active incipient fault detection with more than two simultaneous faults. , 2009, , .  |     | 4         |
| 97  | Chapter 10: Optimal Control of a Delay PDE. , 2012, , 213-231.  |     | 4         |
| 98  | On the numerical treatment of linear-quadratic optimal control problems for general linear time-varying differential-algebraic equations. Journal of Computational and Applied Mathematics, 2013, 242, 213-231. | 2.0 | 4         |
| 99  | Operator-valued inner functions analytic on the closed disc. II. Pacific Journal of Mathematics, 1975, 60, 37-49.   | 0.5 | 4         |
| 100 | Active incipient fault detection in continuous time systems with multiple simultaneous faults. Numerical Algebra, Control and Optimization, 2011, 1, 211-224.   | 1.6 | 4         |
| 101 | The exponential representation of operator valued, differentiable inner functions. Journal of Differential Equations, 1972, 12, 455-461.  | 2.2 | 3         |
| 102 | On the limit of a product of matrix exponentials. Linear and Multilinear Algebra, 1978, 6, 55-59.   | 1.0 | 3         |
| 103 | Active Robust Fault Detection of Closed-Loop Systems: General Cost Cas. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2009, 42, 585-590.   | 0.4 | 3         |
| 104 | Feedback in Active Fault Detection. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2009, 42, 192-196.   | 0.4 | 3         |
| 105 | Active incipient fault detection with two simultaneous faults. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2009, 42, 573-578.  | 0.4 | 3         |
| 106 | Constructing observers for linear time varying DAEs. , 2012, , .  |     | 3         |
| 107 | Robust finite-time filtering for singular discrete-time stochastic systems. , 2015, , .   |     | 3         |
| 108 | Direct Transcription Solution of Optimal Control Problems with Differential Algebraic Equations with Delays. , 2013, , .  |     | 3         |

| #   | ARTICLE   | IF  | CITATIONS |
|-----|---|-----|-----------|
| 109 | Eigenvalue placement in completions of DAES. <i>Electronic Journal of Linear Algebra</i> , 0, 26, .   | 0.6 | 3         |
| 110 | Isometries on $L^p$ Spaces and Copies of $l^p$ Shifts. <i>Proceedings of the American Mathematical Society</i> , 1979, 77, 198.                             | 0.8 | 2         |
| 111 | Convergent regular splittings for nonnegative matrices. <i>Linear and Multilinear Algebra</i> , 1981, 10, 63-73.  | 1.0 | 2         |
| 112 | Internal stability of two dimensional systems. <i>Linear and Multilinear Algebra</i> , 1983, 14, 365-369.   | 1.0 | 2         |
| 113 | Model-Based Failure Detection on Nonlinear Systems: Theory and Transition. <i>Naval Engineers Journal</i> , 2007, 119, 93-107.                              | 0.1 | 2         |
| 114 | Chapter 1: DAEs, Control, and Optimization. , 2012, , 1-16.   |     | 2         |
| 115 | Observer Based Fault Detection and Identification in Differential Algebraic Equations. , 2013, , .  |     | 2         |
| 116 | Asynchronous auxiliary signal design for failure detection. , 2014, , .   |     | 2         |
| 117 | General Nonlinear Differential Algebraic Equations and Tracking Problems: A Robotics Example. <i>Differential-algebraic Equations Forum</i> , 2018, , 1-36. | 0.6 | 2         |
| 118 | Compose, OML, and Activate: A New Software Suite for Modeling and Simulation. , 2019, , .   |     | 2         |
| 119 | Invariant Subspaces, Derivative Arrays, and the Computation of the Drazin Inverse. <i>Vietnam Journal of Mathematics</i> , 2020, 48, 661-677.               | 0.8 | 2         |
| 120 | Examination of solving optimal control problems with delays using GPOPS-â...j. <i>Numerical Algebra, Control and Optimization</i> , 2021, 11, 283.          | 1.6 | 2         |
| 121 | On asymptotic properties of several classes of operators. <i>Proceedings of the American Mathematical Society</i> , 1977, 66, 79-84.                        | 0.8 | 2         |
| 122 | Differential-Algebraic Equations. <i>Oberwolfach Reports</i> , 2007, 3, 1077-1168.  | 0.0 | 2         |
| 123 | Nontrivial isometries on $l^p(\mathbb{Z})$ . <i>International Journal of Mathematics and Mathematical Sciences</i> , 1982, 5, 257-261.                      | 0.7 | 1         |
| 124 | Multiparameter singular systems: Nondissective approaches. , 1983, , .  |     | 1         |
| 125 | Modeling Viscoelastic Wall Properties of Ovine Arteries. , 2009, , .  |     | 1         |
| 126 | Direct Transcription Solution of Optimal Control Problems with Control Delays. <i>AIP Conference Proceedings</i> , 2011, , .                                | 0.4 | 1         |



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|-----|--|-----|-----------|
| 127 | Auxiliary signal design for failure detection with initial prior information. , 2016, , .  |     | 1         |
| 128 | Actuator effects on auxiliary signal design for failure detection. , 2016, , .   |     | 1         |
| 129 | The Flexibility of DAE Formulations. Differential-algebraic Equations Forum, 2015, , 1-59.   | 0.6 | 1         |
| 130 | A nonlinear system with singular vector field near equilibria. Applicable Analysis, 1981, 12, 57-71.   | 1.3 | 0         |
| 131 | Review of polynomials and linear control systems, by Stephen Barnett. Linear Algebra and Its Applications, 1984, 61, 289-290.                    | 0.9 | 0         |
| 132 | Distributional convergence of BDF approximations to solutions of descriptor systems. Circuits, Systems, and Signal Processing, 1989, 8, 261-265. | 2.0 | 0         |
| 133 | Convergence of BDF approximations for nonsolvable differential algebraic equations. Applied Numerical Mathematics, 1990, 6, 153-158.             | 2.1 | 0         |
| 134 | Comment on solution of differential-algebraic equations through gradient flow embedding. Computers and Chemical Engineering, 2017, 106, 529-531. | 3.8 | 0         |
| 135 | Teaching Introductory Differential Equations with ScicosLab. CODEE Journal, 2010, 7, 1-12.   | 0.1 | 0         |