Resource Summary Report

Generated by RRID on Aug 12, 2026

MATCONT and CL MATCONT: Continuation Software in Matlab

RRID:SCR_012822
Type: Tool

Proper Citation

MATCONT and CL MATCONT: Continuation Software in Matlab (RRID:SCR_012822)

Resource Information

URL: http://www.sourceforge.net/projects/matcont

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Description: MATCONT is a graphical MATLAB package for the interactive numerical study of parameterized dynamical systems. It is developed in parallel with the command line continuation toolbox CL_MATCONT and with the command line continuation toolbox CL_MATCONTM for the interactive numerical study of parameterized maps and iterates of maps. MATCONT and CL_MATCONT allow the numerical continuation of equilibria, limit cycles and homoclinic orbits, detection of codimension 1 and 2 bifurcations, continuation of the codimension 1 bifurcations and computation of their normal forms. For equilibria normal form coefficients of codimension 2 bifurcations are also computed, as well as switching to the codimension 1 curves in codimension 2 points. CL_MATCONTM provides similar facilities for maps and iterates of maps, including normal form coefficients of codimension 2 bifurcations and continuation of homoclinic and heteroclinic connections and tangencies of such connections.

Synonyms: MATCONT

Resource Type: software application, simulation software, data processing software, software resource

Keywords: dynamical system, bifurcation, map, neuroinformatics, normal form, simulation, software

Resource Name: MATCONT and CL MATCONT: Continuation Software in Matlab

Resource ID: SCR_012822

Alternate IDs: nif-0000-00165

Record Creation Time: 20220129T080312+0000

Record Last Update: 20260812T044233+0000

Ratings and Alerts

No rating or validation information has been found for MATCONT and CL MATCONT: Continuation Software in Matlab.

No alerts have been found for MATCONT and CL MATCONT: Continuation Software in Matlab.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 26 mentions in open access literature.

Listed below are recent publications. The full list is available at RRID .

Sardar P, et al. (2026) Modeling NRTIs and PIs class drug therapy on the dynamics of HIV infection with real patient data analysis and optimized control strategy. Scientific reports, 16(1), 4580.

Shukla S, et al. (2025) On the mechanisms of epidermal stemness and differentiation. NPJ systems biology and applications, 11(1), 106.

Upchurch CM, et al. (2024) Persistent Interruption in Parvalbumin-Positive Inhibitory Interneurons: Biophysical and Mathematical Mechanisms. eNeuro, 11(7).

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Marrone JI, et al. (2023) A nested bistable module within a negative feedback loop ensures different types of oscillations in signaling systems. Scientific reports, 13(1), 529.

Subbalakshmi AR, et al. (2023) The ELF3 transcription factor is associated with an epithelial phenotype and represses epithelial-mesenchymal transition. Journal of biological engineering, 17(1), 17.

Dobreva A, et al. (2022) Insights into pathological mechanisms and interventions revealed by analyzing a mathematical model for cone metabolism. Bioscience reports, 42(3).

Khumukcham SS, et al. (2022) A reciprocal feedback loop between HIF-1? and HPIP controls phenotypic plasticity in breast cancer cells. Cancer letters, 526, 12.

Ye W, et al. (2021) Dynamics of a Large-Scale Spiking Neural Network with Quadratic Integrate-and-Fire Neurons. Neural plasticity, 2021, 6623926.

Subbalakshmi AR, et al. (2021) KLF4 Induces Mesenchymal-Epithelial Transition (MET) by Suppressing Multiple EMT-Inducing Transcription Factors. Cancers, 13(20).

Chedere A, et al. (2021) Multi-Stability and Consequent Phenotypic Plasticity in AMPK-Akt Double Negative Feedback Loop in Cancer Cells. Journal of clinical medicine, 10(3).

Shao B, et al. (2021) Collective oscillations of coupled cell cycles. Biophysical journal, 120(19), 4242.

Sahoo S, et al. (2020) Emergent Properties of the HNF4?-PPAR? Network May Drive Consequent Phenotypic Plasticity in NAFLD. Journal of clinical medicine, 9(3).

Papasavvas CA, et al. (2020) Divisive gain modulation enables flexible and rapid entrainment in a neocortical microcircuit model. Journal of neurophysiology, 123(3), 1133.

Arnaut LG, et al. (2020) Self-sustained oscillations and global climate changes. Scientific reports, 10(1), 11200.

Chen Z, et al. (2020) Top-Down Control of Inhibitory Granule Cells in the Main Olfactory Bulb Reshapes Neural Dynamics Giving Rise to a Diversity of Computations. Frontiers in computational neuroscience, 14, 59.

Verma P, et al. (2020) Examining Sodium and Potassium Channel Conductances Involved in Hyperexcitability of Chemotherapy-Induced Peripheral Neuropathy: A Mathematical and Cell Culture-Based Study. Frontiers in computational neuroscience, 14, 564980.

Mondal A, et al. (2019) Firing activities of a fractional-order FitzHugh-Rinzel bursting neuron model and its coupled dynamics. Scientific reports, 9(1), 15721.

Lindmark M, et al. (2019) Size-based ecological interactions drive food web responses to climate warming. Ecology letters, 22(5), 778.

Kügler P, et al. (2018) Early afterdepolarizations in cardiac action potentials as mixed mode oscillations due to a folded node singularity. PloS one, 13(12), e0209498.