

Vogel

Von: Maplesoft [customerservice@maplesoft.com]
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An: sekretariat@sga-asspa.ch
Betreff: Discover how Maplesoft Software is Used in Advanced Engineering Research



Maplesoft Software Used in Advanced Engineering Research

In engineering research, detail is vital. Researchers must not only develop models quickly, but they also require in-depth analytical tools to help them understand on a fundamental level the intricacies of their models. Fortunately, tools like MapleSim and Maple, from Maplesoft, are available to researchers to aid in their model development and analysis. With MapleSim, researchers can quickly develop their models and can gain insight into their systems' behaviours. Researchers at many academic institutions have adopted MapleSim, advanced physical modeling software from Maplesoft, as a key tool in their engineering research activities.

This article illustrates how engineering researchers are making significant strides in their work with the help of Maplesoft technology. It highlights the work of six researchers from around the world, and discusses such diverse projects as space rovers, humanoid robots, parallel manipulators, golf clubs, and electric and hybrid-electric vehicle batteries.

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[Dr. Amir Khajepour, Professor of Engineering at the University of Waterloo, and Canada Research Chair in Mechatronic Vehicle Systems:](#)

Dr. Amir Khajepour has used Maplesoft technology in all of his research projects over the past 10 years. Recently, Dr. Khajepour used MapleSim as part of an ongoing project with the Canada Space Agency, to develop a full solution for the power management system of autonomous rovers.

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[Dr. Venkat Krovi, Professor of Engineering, University of SUNY Buffalo and Director of the Automation, Robotics and Mechatronics Laboratory \(ARM Lab\):](#)

In his research, Dr. Krovi and his research team analyzed a general 6 DOF P-U-S manipulator and conducted a kinematic analysis. Maple and MapleSim were used to create the system model. The key benefit to using MapleSim to create the model was that it provided the kinematic symbolic equations for the system automatically.

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[Dr. John McPhee, Professor of Systems Design Engineering, University of Waterloo, Executive Director of the Waterloo Centre for Automotive Research \(WatCAR\), and NSERC/Toyota/Maplesoft Industrial Research Chair for Mathematics-based Modeling:](#)

Dr. John McPhee and his research team are collaborating with experts at Maplesoft and Toyota to develop math-based models and computer simulations, with a focus on automotive applications such as vehicle dynamics, powertrains, and hybrid electric vehicles.

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[Dr. Martin Brown and Dr. Gustavo Medrano-Cerda, School of Electrical and Electronics Engineering, University of Manchester, and Professor Darwin Caldwell, Italian Institute of Technology:](#)

A project using MapleSim at the University of Manchester's new center, the Centre for Interdisciplinary Computational and Dynamic Analysis (CICADA), is helping to perfect the process of humanoid walking in robots. The Manchester team, lead by Dr. Martin Brown and Dr. Gustavo Medrano-Cerda, and including Ph.D. student Mr. Houman Dallali, has been working with Professor Darwin Caldwell at the Italian Institute of Technology, Genova, who has been developing a novel compliant humanoid robot (CCub) based on the previously developed humanoid robot iCub at IIT.

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To read the full article, [click here](#).

Sincerely,



[Philippe Perrier](#)
Territory Manager
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