



## Paul Mitiguy

Lecturer

Mechanical Engineering

 Curriculum Vitae available Online

### Bio

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#### BIO

From Milton MA and LaSalette, Paul did his undergraduate work at Tufts University and his mechanical engineering graduate work (Ph.D) at Stanford under Thomas Kane.

As a young adult, Paul worked summers landscaping, farming, and construction, then worked at MIT Lincoln Laboratory, NASA Ames, and MSC.Software, was a consulting editor for McGraw-Hill (mechanics), and has been a consultant for the software, robotics, biotechnology, energy, automotive, and mechanical/aerospace industries.

He developed force/motion software used by more than 12 million people worldwide and translated into 11 spoken languages. These software applications include Interactive Physics, Working Model 2D/3D, MSC.visualNastran 4D (now SimWise), NIH Simbody/OpenSim, and the symbolic manipulators Autolev/MotionGenesis.

Paul currently works on Drake, open-source software developed by TRI (Toyota Research Institute) to simulate robots and autonomous vehicles. In his role as Lead TRI/Stanford Liaison for SAIL (Toyota's Center for AI Research at Stanford), he facilitates research between TRI and Stanford.

At Stanford, Paul greatly enjoys working with students and teaches mechanics (physics/engineering), controls/vibrations, and advanced dynamics & computation/simulation. He has written several books on dynamics, computation, and control (broadly adopted by universities and professionals).

Paul is highly appreciative of support from Stanford alumni/CEO Dave Baszucki who developed internationally acclaimed physics, engineering, and gaming/educational software, including Interactive Physics, Working Model, MSC.visualNastran, and Roblox.

He is very grateful to students, co-instructors (TAs), faculty, and staff.

#### ACADEMIC APPOINTMENTS

- Lecturer, Mechanical Engineering

#### ADMINISTRATIVE APPOINTMENTS

- Lead TRI/Stanford Liaison, Toyota Research Institute, (2018- present)

#### HONORS AND AWARDS

- Tau Beta Pi Teaching Honor Roll (one of 12 instructors in school of engineering), Tau Beta Pi (2022)

- Tau Beta Pi Teaching Honor Roll (one of 12 instructors in school of engineering), Tau Beta Pi (2019)
- Tau Beta Pi Teaching Honor Roll (one of 12 instructors in school of engineering), Tau Beta Pi (2018)
- Tau Beta Pi Teaching Honor Roll (one of 12 instructors in school of engineering), Tau Beta Pi (2017)
- Tau Beta Pi Professor of the Year, Tau Beta Pi (2010)
- SOLE Diversity Professor of the Year/Keynote, Stanford Society of Latino Engineers (2007, 2008, 2012, 2017, 2019)
- Co-PI Stanford K-12 Challenge, Stanford (2008)
- Outstanding Achievement in Engineering Practice (mid-career award), Tufts University (2003)
- NDES Best Desktop Software award, MSC Software (1998)
- NASA Tech Briefs Product of the Year, Knowledge Revolution (1998)
- Design News Product of the Year, Knowledge Revolution (1996)

## **BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS**

- Member, ASME - American Society of Mechanical Engineers (1984 - present)

## **Teaching**

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### **COURSES**

#### **2023-24**

- Advanced Dynamics & Computation: ME 331A (Win)
- Advanced Dynamics, Simulation & Control: ME 331B (Spr)
- Dynamic Systems, Vibrations and Control: ME 161 (Aut)
- Mechanical Engineering Teaching Assistance Training: ME 492 (Win)

#### **2022-23**

- Advanced Dynamics & Computation: ME 331A (Win)
- Advanced Dynamics, Simulation & Control: ME 331B (Spr)
- Dynamic Systems, Vibrations and Control: ME 161 (Aut)
- Vector and Mathematical Analysis for Mechanics: PHYSICS 40 (Aut)

#### **2021-22**

- Advanced Dynamics & Computation: ME 331A (Win)
- Advanced Dynamics, Simulation & Control: ME 331B (Spr)
- Vector and Mathematical Analysis for Mechanics: PHYSICS 40 (Aut)

#### **2020-21**

- Vector and Mathematical Analysis for Mechanics: PHYSICS 40 (Win)

## **Publications**

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### **PUBLICATIONS**

- **Textbook: Dynamics of Mechanical, Aerospace, and Bio/Robotic Systems**  
Mitiguy, P.  
Prodigy Press.2020
- **Textbook: Control, Vibration, and Design of Dynamic Systems**  
Mitiguy, P.

Prodigy Press.2020

- **Textbook: Advanced Dynamics and Motion Simulation**

Mitiguy, P.

Prodigy Press.2020

- **A Unified Method for Multi-Body Systems Subject to Stick-Slip Friction and Intermittent Contact** *IEEE/RSJ International Conference on Intelligent Robots and Systems*

Perkins, A. D., Abdallah, M. E., Mitiguy, P., Waldron, K. J.

IEEE.2008: 2311–2316

- **A simple method to obtain consistent and clinically meaningful pelvic angles from Euler angles during gait analysis** *JOURNAL OF APPLIED BIOMECHANICS*

Wren, T. A., Mitiguy, P. C.

2007; 23 (3): 218-223

- **Inputoutput** *MECHANICAL ENGINEERING*

Mitiguy, P.

2002; 124 (10): 88-88

- **Motion variables leading to efficient equations of motion** *INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH*

Mitiguy, P. C., Kane, T. R.

1996; 15 (5): 522-532