

Stanford



Paul Mitiguy

Lecturer

Mechanical Engineering

 Curriculum Vitae available Online

Bio

BIO

From Milton MA, 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

COURSES

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

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