James Richard Forbes

Professor, William Dawson Scholar
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Biosketch

James Richard Forbes received the B.A.Sc. degree in Mechanical Engineering (Honours, Co-op) from the University of Waterloo, Waterloo, ON, Canada, and the M.A.Sc. and Ph.D. degrees in Aerospace Science and Engineering from the University of Toronto Institute for Aerospace Studies (UTIAS), Toronto, ON, Canada, in 2008 and 2011, respectively. James is currently a *Professor* of Mechanical Engineering at McGill University, Montreal, QC, Canada. In recognition of his research contributions James was awarded a *William Dawson Scholar* award in 2018 for a 5 year term, which was renewed in 2023 for another 5 year term. James is a Full Member of the Centre for Intelligent Machines (CIM), a Member of the Group for Research in Decision Analysis (GERAD), and an Associate Academic Member of Mila. James was awarded the McGill Associate for Mechanical Engineering (MAME) *Professor of the Year* Award in 2016, the Engineering Class of 1944 *Outstanding Teaching Award* in 2018, the Carrie M. Derick *Award for Graduate Supervision and Teaching* in 2020, the Samuel and Ida Fromson *Outstanding Teaching Award* in Engineering in 2024, and the inaugural winner of the Donald L. Mordell EUS *Teaching Excellence Award* in 2026. The focus of James' research is data-driven modelling, navigation, and control of robotic and aerospace systems. James is currently a senior editor of the Int. Journal of Robotics Research. James' research group, the Dynamics, Estimation, and Control in Aerospace and Robotics (DECAR) group, conducts fundamental and applied research in collaboration with various industrial companies in Quebec, Canada, and internationally. James has co-authored over 115 refereed journal papers, over 90 refereed conference papers, one textbook, has over 4000 citations and an h-index of 33, and has given many research talks at universities, government research centers, and companies. James is a Professional Engineer registered in the province of Ontario.

University Education

University of Toronto, Aerospace Science and Engineering, Ph.D., November 10, 2011
University of Toronto, Aerospace Science and Engineering, M.A.Sc., June 16, 2008
University of Waterloo, Honours Mechanical Engineering (co-op), B.A.Sc., June 17, 2006

Appointments

Professor, Dept. of Mechanical Engineering, McGill University, May 2025 - Present
Associate Professor, Dept. of Mechanical Engineering, McGill University, June 2018 - Present
Assistant Professor, Dept. of Mechanical Engineering, McGill University, May 2011 - August 2013, August 2015 - May 2018
Assistant Professor, Dept. of Aerospace Engineering, University of Michigan, September 2013 - May 2018

Awards, Recognition, and Nominations

April 2, 2026	Winner of the **Donald L. Mordell EUS Teaching Excellence Award**
May 22, 2025	International Conference on Robotics and Automation (ICRA) **best paper award** for the paper: Zi Cong Guo, James R. Forbes, Timothy D. Barfoot, "Marginalizing and Conditioning Gaussians onto Linear Approximations of Smooth Manifolds with Applications in Robotics," International Conference on Robotics and Automation, Atlanta, GA, May 19-23, 2025
April 24, 2024	Winner of the **Samuel and Ida Fromson Outstanding Teaching Award in Engineering**
June 2021	International Conference on Robotics and Automation (ICRA) **best student paper award finalist** (1 of 4 finalists) for the paper: M. Shalaby, C. C. Cossette, J. Le Ny, and J. R. Forbes, "Cascaded Filtering Using the Sigma Point Transformation," *IEEE Robotics and Automation Letters*, vol. 6, no. 3, pp. 4758-4765, 2021. Jointly accepted to ICRA.
April 2020	Winner of the **Carrie M. Derick Award for Graduate Supervision and Teaching**
January 25, 2020	Work done in collaboration with Ubisoft La Forge and McGill featured on "Two Minute Papers": `https://www.youtube.com/watch?v=o_DhNqHazKY`
May 31, 2017	Winner of the **Engineering Class of 1944 Outstanding Teaching Award**
2017, 2014	Nominated for the ACGSC Dave Ward Memorial Lecture Award
April 7, 2016	Winner of the **McGill Association of Mechanical Engineers (MAME) "Professor of the Year"**

Consulting

November 2024 - Present	*Sonardyne International*, Yateley, UK Job title: Stratigic Advisor. Job description: Provide guidance on various aspects of subsea navigation.
2019	*Samsung Artificial Intelligence Center*, Montreal, QC Job title: Consultant. Job description: Consulted on various aspects of robot navigation.