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Background: Kamal Youcef-Toumi joined the MIT Mechanical Engineering Department faculty in 1985. He earned his advanced degrees (M.S. 1981 and Sc.D. 1985) in Mechanical Engineering from MIT. His undergraduate degree (B.S. in Mechanical Engineering awarded in 1979) is from the University of Cincinnati. Professor Youcef-Toumi's research has focused primarily on (i) System dynamics modeling and design methodologies, and (ii) Control Theory and computational intelligence. In particular, he explores the development of

control and learning techniques with fast adaptation. Applications have included robotics, automation, intelligent systems with artificial intelligence, metrology, and nanoscale video imaging. He teaches courses in the fields of automatic control systems; robotics/AI/Machine Learning; precision machine design and mechatronics.

He made significant contributions to MIT's international research and education collaborations, including Qatar, Russia, Saudi Arabia, Singapore, and the United Arab Emirates. Professor Youcef-Toumi was selected as a National Science Foundation Presidential Young Investigator "in recognition of research and teaching accomplishments and academic potential"; awarded by President Ronald Reagan. He served as a member on several professional committees of The National Science Foundation, Chairman of the Information Technology program within The Arab Science and Technology Foundation, a Member of the review committee for the European Union-funded Network of Excellence for Innovative Production Machines and Systems, Member of the Scientific Committee for Qatar Foundation Annual Research Forum, Head of the Controls, Instrumentation and Robotics Area in the Mechanical Engineering Department at MIT, Member of the MIT Council for International Programs, and Research and Strategy Advisor for Qatar Computing Research Institute, and as Co-Director of the Center for Clean Water and Clean Energy at MIT and King Fahd University of Petroleum and Minerals (KFUPM). Professor Youcef-Toumi is now the Director of the MIT Mechatronics Research Laboratory <https://mechatronics.mit.edu/>. He is also the Co-Director of the Center of Complex Engineering Systems at King Abdulaziz City for Science and Technology (KACST) & MIT, <https://cces.mit.edu/>. This collaboration trains aspiring academics in Saudi Arabia to conduct leading and cross-disciplinary research. He also directs the MIT Ibn Khaldun Fellowship Program for Saudi Arabian Women <https://ibk.mit.edu/>, which provides Saudi women PhD holders with the opportunity to conduct cutting-edge research in an MIT lab for 1-2 years and pursue professional development opportunities.

Some of Professor Youcef-Toumi's research sponsors include ShinMaywa, Toshiba, Mars, Panasonic, Japan Steel Works, Synfuels Americas, Weichai, Ford, Schlumberger, Omron, Wuxi Friedrich Measurement & Control Instruments Co., Banzan, Toyota, Qatar Foundation, the King Fahd University of Petroleum and Minerals, NASA, the National Science Foundation, the King Abdulaziz City for Science and Technology, Skoltech, Daewoo, Samsung, Gillette, IBM, Ebara, Mitsubishi Electric, Denso, and the Masdar Institute. He has helped supervise projects through MIT's Leaders for Global Organization Program with companies such as Boeing, Amazon, Nike, Nissan, MGH, ABB, and Amgen. He has served as a consultant for several companies including AT&T Bell Laboratories, EDO Corporation, Varian Radiation Division, Gillette Corporation, Delta Search Laboratories, Jentek Sensors, Morgan Stanley Co., General Electric, TEKES - National Technology Agency of Finland, Jordan Hospital, Mitsubishi Electric Corporation, Penn State University-College of Medicine - Cancer Institute, Board of Trustees at the University of Sharjah, International Advisory Board at L'Ecole Centrale de Lille, Engineering and Physical Sciences Research Council (EPSRC, United Kingdom) and Saudi Aramco.

Professor Youcef-Toumi is an IEEE Senior and Life member, an ASME Fellow, and a Fellow of the International Association of Advanced Materials. He served as Chairman of the ASME Dynamics Systems & Control Division Robotics Panel. He was an Associate Editor of the ASME Journal of Dynamic Systems Measurement and Controls, the International Program Committee Chairman for the 2010 IFAC Symposium on Mechatronic Systems, and an Associate Editor of the ASME's Dynamic Systems and Control Division (DSCD) Conference Editorial Board. He has served as Editor of several symposia/conference proceedings. Professor Youcef-Toumi is the author of over 360 refereed publications, including two textbooks, and several book chapters. He holds about 65 registered/pending patents. Professor Youcef-Toumi has been an invited lecturer at over 290 seminars, many of which were keynote, at companies, research centers, and universities worldwide. He has supervised 33 PhD students, 152 Master's students, and 61 Bachelor's students.