

Adam Dershowitz, Ph.D., P.E.
Managing Engineer

Professional Profile

Dr. Adam Dershowitz is a Managing Engineer in Exponent's Thermal Sciences practice. Dr. Dershowitz specializes in aeronautical and astronautical engineering. He has expertise in aircraft and spacecraft systems and instrumentation. Dr. Dershowitz studies the interactions of complex systems, including human in the loop systems; airplane and helicopter icing; manned and unmanned space vehicles; cockpit displays; control of vehicles; decision making; safety critical software; and software failures. He models and analyzes vehicles, systems, and their accidents, and analyzes and presents high dimensionality and complex data.

Prior to joining Exponent, Dr. Dershowitz worked at Johnson Space Center for United Space Alliance. There, he worked in NASA's Mission Control Center on the motion control system of the International Space Station, designed and researched advanced technology solutions for Mission Control, and served as a member of the orbital debris analysis team for the Shuttle Columbia accident investigation. Dr. Dershowitz has significant teaching experience, both in the classroom and as a certified flight instructor.

Academic Credentials and Professional Honors

Ph.D., Aeronautics and Astronautics, Massachusetts Institute of Technology, 1998
M.S., Aeronautics and Astronautics, Massachusetts Institute of Technology, 1991
B.S., Aeronautics and Astronautics, Massachusetts Institute of Technology, 1989

NASA Certificate of Recognition from Inventions and Contributions Board, 2005; Nominated NASA Software of the year, 2003; NASA Spaceflight Awareness Award, 2002; Recipient Best Paper Award at AIAA Guidance, Navigation and Controls Conference, 2002; USA Superior Achievement Recognition Award for Technical Achievement, 2001; USA Employee of the month for Technical Achievement, August 2001; NASA Astronaut Selection Finalist, 2000; Nominated to be one of M.I.T. Aero/Astro XVI sixteen "whose innovation and vision for the future will help to create a future of opportunity," NASA Certificate of Recognition and cash award "For the creative development of a technical innovation which has been proposed for publication as a NASA Technical Brief, "August 1996; Distinguished Contributor, B.F. Goodrich Collegiate Inventors Program, April 1992; Hunsaker Teaching Fellowship at M.I.T., awarded 1991

Licenses and Certifications

Registered Professional Mechanical Engineer, California #M33404; Florida P.E. #70277; Certified Flight Instructor in single and multiengine airplanes and instruments; Commercial Airplane, Glider, Instrument, aerobatic, and multiengine rated pilot; University of Southern California Aviation Safety and Security Certificate; USC System Safety Certificate (Courses include: Aircraft Accident Investigation; Human Factors in Aviation Safety; Software Safety;

System Safety; Advanced System Safety; Human Error Analysis); Northwestern Accident Reconstruction Course; HAZWOPER Certified; NAUI Open Water SCUBA certified; First aid, CPR, and AED trained; 2nd degree black belt in Aikido; Certified Forklift Operator

Patents

Patent 5,313,202: Method of and apparatus for detection of ice accretion January 1993 (with R.J. Hansman).

Patent 5,039,439: Optically indicating surface de-icing fluids, March 1989 (with R.J. Hansman).

Publications

Dershowitz A. ISPATOM: A generic real-time data processing tool without programming. NASA Software Tech Briefs, September 2007.

Kim J, Crassidis J, Vadali S, Dershowitz A. International Space station leak localization using attitude response data. *Journal of Guidance, Control, and Dynamics* 2006; September–October.

Chamitoff G, James G, Barker D, Dershowitz A. Martian resource locations: Identification and optimization. *Acta Astronautica* 2005; 56:756–769.

Chamitoff G, James G, Barker D, Dershowitz A. Mars mission optimization based on collocation of resources. 6th International on Mars, Pasadena, CA, July 20–25, 2003.

Dershowitz A. ISPATOM: A case study in new-generation generics for operational environments. *Space Ops 2002/World Space Congress 2002*, Houston, TX, October 9–12, 2002.

Chamitoff G, Dershowitz A. Bird's eye view—A 3-D situational awareness tool for the Space Station. *Space Ops 2002/World Space Congress 2002*, Houston, TX, October 9–12, 2002.

Kim J, Crassidis J, Vadali S, Dershowitz A. ISS leak localization using attitude response. *Proceedings, AIAA Guidance, Navigation and Control Conference*, Montreal, Canada; August 2001.

Chamitoff GE, Dershowitz A, Bryson AL. Command level maneuver optimization for the International Space Station. *Proceedings, 23rd Annual AAS Guidance and Control Conference*, Breckenridge, CO, February 2, 2000.

Dershowitz A. The effect of options on pilot decision making in the presence of risk. Ph.D. thesis, Department of Aeronautics and Astronautics and MIT, Cambridge, MA, October 1997.

Dershowitz A, Hansman RJ. An exploration of options in value based aeronautical decision making. *Proceedings, 9th International Symposium on Aviation Psychology*, Columbus, OH, April 30–May 1, 1997.

Dershowitz A, Lind AT, Chandra DC, Bussolari SR. The effect of compression induced distortion of graphical weather on pilot decision making. 8th International Symposium on Aviation Psychology, Columbus, OH, 1995.

Hansman RJ, Dershowitz A. Temperature measurements reveal accretion of ice on airfoils. NASA Tech Briefs, July 1995.

Lind AT, Dershowitz A, Chandra DC, Bussolari SR. A human factors approach to the development and evaluation of the graphical weather service. Proceedings, 14th Annual Digital Avionics Systems Conference, Cambridge, MA, 1995.

Simpson R, Hansman RJ, Dershowitz A, Yamaguchi K, Kazmierczak M, Wanke C. An Investigation of air transportation technology at the Massachusetts Institute of Technology, 1990–1991. Proceedings, NASA Joint University Program for Air Transportation Research, 1990–1991, NASA CP-3131, June 1991.

Dershowitz A, Hansman RJ. Experimental investigation of passive infrared ice detection of helicopter applications. Presented at the 29th Aerospace Sciences Meeting, paper AIAA-91-0667, Reno, NV, January 7–10, 1991.

Dershowitz A, Hansman RJ. Passive infrared ice detection for helicopter applications. 46th Annual Forum of the American Helicopter Society, May 1990.

Presentations

Dershowitz A, Weaver B. Engineering case studies of aircraft incidents, lessons learned. Chicago Bar Association Annual Meeting on Aviation Law, October 2007.

Dershowitz A. Failure analysis with case studies. Society for the Advancement of Materials and Process, ASM Failure Analysis Round Table, Cal State Northridge, April 26, 2006.

Dershowitz A, Reza A, Schroeder S. What happened? How an engineering laboratory can help you figure it out!” 2006 Winter Meeting of the California Conference of Arson Investigators, San Luis Obispo, CA January 30–February 1, 2006.

Professional Affiliations

- American Institute for Aeronautics and Astronautics (senior member)
- AIAA Systems Engineering Technical Committee (member)
- Human Factors and Ergonomics Society—HFES (member)
- Sigma Xi (member)