

Ashish Arora, P.E., CFEI
Senior Managing Engineer

Professional Profile

Mr. Ashish Arora is a Senior Managing Engineer in Exponent's Electrical Engineering and Computer Science practice. Mr. Arora specializes in electrical and electronic systems particularly in power converter and rechargeable battery technology design and safety evaluation. He also has broad expertise in analog and digital electronic systems, computer systems, programmable controllers and software systems.

At Exponent, Mr. Arora has investigated the safety of consumer products and performed design reviews, safety evaluations and failure analysis in the field of power storage and conversion systems including power electronics, energy storage systems, battery charging and management systems, power supplies, UPS systems etc. He has developed test and safety evaluation procedures for energy storage and control systems, as well as complex control system designs, utilizing his failure analysis experience. Mr. Arora has also worked on failure analysis of both passive and active electronic components. In addition, he has assisted in investigations related to potential product recalls.

Mr. Arora was also contributing to the development of an automated multi-electrochemical cell charger simulator and cyler and an automated power supply safety performance tester at Exponent.

As a research engineer with CATQER at the University of Canberra, Mr. Arora designed and implemented an experimental 4.2 km University of Canberra-Telstra Tower Free-Space Quantum Cryptographic Key Distribution Test-Bed (optical and RF communications link).

Academic Credentials and Professional Honors

M.S., Electrical and Computer Engineering, Purdue University, 2003
B.S., Engineering, University of Canberra, (First Class Honors), Australia, 2001

University Medal for outstanding academic excellence in the bachelor's degree from the University of Canberra, Australia (2001); The 2001 W E Samsun Medal Prize for the most outstanding graduate in the fourth year of the undergraduate degree course in Electronics and Communication Engineering from the Division of Management and Technology, University of Canberra (2001); The Institute of Electrical Engineers Prize in the area of signal processing and Telecommunications awarded by the Institute of Electrical Engineers, UK (2000); The Australian Institute of Physics Prize in the area of radio and optical communications awarded by the Institute of Physics, Australia (2000)

Licenses and Certifications

Professional Electrical Engineer, Arizona, #47547

Certified Fire and Explosion Investigator (CFEI) in accordance with the National Association of Fire Investigators (NAFI) National Certification Board

Languages

Hindi

Book Chapters

Arora A, Medora NK, et al. Safety of lithium-ion batteries for hybrid electric vehicles. In: Electric and Hybrid Vehicles, Power Sources, Models, Sustainability, Infrastructure and the Market, Elsevier B.V., UK, 2010, pp. 463–491.

Publications

Arora A, Pinnangudi B, Harris J. Lithium ion batteries for stationary applications: A safety perspective. Battcon 2011, Orlando, FL, 2011.

Medora NK, Yamaguchi G, Arora A. Conducting high frequency electrical measurements—Case study using a TASER M18 device. 2010 IEEE Symposium on Product Compliance Engineering, Boston, MA, 2010.

Pinnangudi B, Arora A, et al. Thermal shutdown characteristics of separator materials used in lithium-ion batteries. 2010 IEEE Symposium on Product Compliance Engineering, Boston, MA, 2010.

Medora NK, Arora A, Livernois T. Series arcing faults in electrical transportation systems. SAE World Congress, Detroit, MI, 2010.

Arora A, Medora NK, et al. Evaluation of resistive faults in high current starter cables. IEEE Symposium on Product Compliance Engineering, Toronto, Canada, 2009.

Arora A, Medora N, Swart J. Failures of electrical/electronic components: Selected case studies. IEEE Symposium on Product Compliance Engineering, Longmont, CO, 2007.

Swart J, Edmonds J, et al. Case studies of electrical motor and generator failures. Failures 2007, South Africa, 2007.

Swart J, Arora A, et al. Methods for measuring the mechanical safety vent pressure of lithium ion cells. IEEE Symposium on Product Safety and Compliance Engineering, Irvine, CA, 2006.

Swart J, Arora A, et al. Case studies of electrical component failures. Failures 2006, South Africa, 2006.

Swart J, Arora A, Nilsson S. Characterizing the performance of battery chemistries used to power a single-person vehicle. 6th International Advanced Automotive Battery (and Ultracapacitor) Conference, Baltimore, MD, 2006.

Swart J, Arora A, et al. Going beyond industry standards in critically evaluating lithium-ion batteries. Advancements in Battery Charging, Monitoring and Testing, Vancouver, Canada, 2005.

Arora A, Swart J, et al. Characterizing the vent operation of lithium-ion cells and battery packs. 5th International Advanced Automotive Battery (and Ultracapacitor) Conference, Honolulu, Hawaii, 2005.

Arora A, Swart J, et al. Lithium-ion batteries for hybrid electric vehicles: A safety perspective. 5th International Advanced Automotive Battery (and Ultracapacitor) Conference, Honolulu, Hawaii, 2005.

Arora A, Edwards P. Software-based photon counting telemetry receiver for an infrared communications satellite. International Symposium on Optical Science and Technology, San Diego, CA, August 2003.

Selected Presentations

Arora A, Martens J, Babic D. AC & DC adapters safety considerations. IEEE Symposium on Product Compliance Engineering, San Diego, CA, 2011.

Arora A, Harris J. Designing with lithium-ion batteries: An engineering perspective. IEEE Energy Conversion Congress & Exposition, Phoenix, AZ, 2011 (4 hour tutorial).

Arora A, Medora NK, Pinnangudi B. Accessible hot surfaces and burn hazards. IEEE Symposium on Product Compliance Engineering, Boston, MA, 2010.

Arora A, Medora NK, et al. Arc faults in hybrid and high voltage automotive electrical systems. 9th International Advanced Automotive Battery & EC Capacitor Conference (AABC) and Symposia, Long Beach, CA, 2009.

Arora A, Medora N, Livernois T. Circuit protection devices and arc fault detection schemes for electrical automotive systems. IEEE Symposium on Product Compliance Engineering, Austin, TX, 2008.

Arora A. Electrical/system component failures. ASM International Meetings, Phoenix, AZ, 2008.

BenKinney M., Arora A, Swart J. The influence of regulatory changes on unique product designs. IEEE Symposium on Product Compliance Engineering, Longmont, CO, 2007.

Professional Affiliations

- Institute of Electrical and Electronic Engineers (member)
- National Association of Fire Investigators—NAFI
- Society of Automotive Engineers (member)