



Society for Imaging Science & Technology
7003 Kilworth Lane ▲ Springfield, VA 22151

703/642-9090; 703/642-9094 fax
info@imaging.org

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Contact: Donna Smith, dsmith@imaging.org

Professor Nabeel Agha Riza Receives Edwin H. Land Medal

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Nabeel Agha Riza, Chair Professor of Electrical and Electronic Engineering (EEE) at University College Cork (UCC), Ireland, has been awarded the 2019 Edwin H. Land Medal for the invention and commercialization of pioneering macro- and micro-scale imaging techniques across RF and optical wavelengths, and the education and mentoring of distinguished scientists and engineers.

The award was established in 1992 by the [Society for Imaging Science and Technology \(IS&T\)](#) and [The Optical Society \(OSA\)](#) to honor Edwin H. Land, inventor, vision scientist, entrepreneur and founder of the Polaroid Corporation. The prize is awarded annually and recognizes pioneers in scientific research whose work has enabled new inventions, technologies, and products.

As a Caltech PhD-educated industrial engineer, professor, entrepreneur, and volunteer, Riza has been making pioneering innovations in the field of photonics for more than 30 years. Riza's inventions include the CAOS camera, fault-tolerant digital MEMS fiber-optics, agile optical wireless, electronic lens-based vision testing and imaging, self-imaging fiber coupling model, liquid crystal and analog-digital fiber-optic RF antenna control, agile pixel MEMS laser beam profiler and 3-D analyzer, and hybrid design Silicon Carbide extreme thermometry.

Riza holds 46 issued patents—28 as single inventor—and has 334 international publications (including 154 journal papers) and 92 invited talks. For his high-impact inventions, Riza was inducted in 2017 into the United States National Academy of Inventors (NAI). He is a pioneer in the use of optical beamforming techniques for RF imaging phased array radars and optical imagers.

Riza recently invented the CAOS smart camera – a paradigm changing imager design using principles of the RF mobile phone multi-access wireless network that provides world record extreme linear dynamic range, inherent image security, extremely low

inter-pixel crosstalk, and full spectral flexibility in one unit not possible in classic CMOS, CCD, FPA cameras.

In addition to his many innovations, Riza has educated engineers who have gone on to win awards and develop successful careers at top industrial and academic research positions at Caltech, MIT, Princeton, Apple, Carl Zeiss, GE, and TI. One of them (M. Arain) also contributed to the LIGO-based gravitational wave discovery that won the 2017 Nobel Prize. In 2013, Riza wrote the textbook *Photonic Signals and Systems: An Introduction*, to teach students the basics and art of design of photonic modules and systems.

Riza is the recipient of the International Optics Commission 2001 ICO Prize; Carl Zeiss Foundation 2001 Abbe Medal; 1994 GE Gold Patent Medal; 2007 EU Erasmus Mundus Visiting Scholar Award; 2009 IEEE Photonics Society Distinguished Lecturer Award; 2008 German Berthold Leibinger Innovation Prize Nominee Distinction Award; 2018 IET Achievement Medal; and the 2009 Ireland Walton Award. Riza is a Fellow of IEEE, IET, the European Optical Society, OSA, and SPIE; an Honorary Fellow of Engineers Ireland Society; and a member of the Royal Irish Academy (RIA) Engineering Committee.

The Edwin H. Land Medal is funded through the support of the Polaroid Foundation, the Polaroid Retirees Association and individual contributors, including Manfred Heiting, Theodore Voss, and John J. McCann.

About IS&T

[The Society for Imaging Science and Technology \(IS&T\)](#) is an international professional non-profit dedicated to keeping members and other imaging professionals apprised of the latest developments in the field through conferences, educational programs, publications, and its website. IS&T programs encompass all aspects of the imaging workflow, which moves from capture (sensors, cameras) through image processing (image quality, color, and materialization) to hard and soft copy output (printing, displays, image permanence), and includes aspects related to human vision, such as image quality and color. The Society also focuses on a wide range of image-related applications, including security, virtual reality, machine vision, and data analysis. Follow us on Twitter [@ImagingOrg](#).

About The Optical Society

Founded in 1916, [The Optical Society \(OSA\)](#) is the leading professional organization for scientists, engineers, students and business leaders who fuel discoveries, shape real-life applications and accelerate achievements in the science of light. Through world-renowned publications, meetings and membership initiatives, OSA provides quality research, inspired interactions and dedicated resources for its extensive global network of optics and photonics experts. For more information, visit [osa.org](#).

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