A day in the life of a Imaging Processing Researcher

As an imaging processing researcher, I work with colleagues to uncover and develop exciting new technology for digital still camera (DSC) image enhancement. Image enhancement technologies (such as red eye removal and face detection) are the brain child of researchers and engineers in Ireland. These and other innovative software solutions can be found in an estimated 80 million digital cameras worldwide. Tessera, the company behind this innovation through its FotoNation technology, has headquarters in the USA and a significant R&D office in Ireland in Galway.

The world of digital cameras is rapidly evolving as expectations and the use of images change. With the increasing inclusion of cameras in mobile phones, the type, and the very way, images are being taken is shifting. Manufacturers in the highly competitive digital camera market face continuous pressure to reduce the cost of cameras without compromising the quality of the images. This is where my colleagues and I come in. It is apparent that, traditionally, the dominant factor in determining image quality is the optics, that is, if you want a good image use good optics. However, size constraints and the ever-decreasing footprint of imaging devices are compromising the quality of imaging lenses. We recognise that, at a certain level, imaging imperfections that were traditionally met with a correction at the optical source, can now be corrected or compensated in the digital domain - offering a smart solution which unburdens the optical designer. These solutions also are designed to not only correct imperfections, but to enhance the imaging capabilities of the camera modules.

On an average day I begin by checking my emails, deal with current business and then sift through any email alerts from the main optics journals. This helps me keep abreast of new optical research findings. At some point during the day I consult with my colleagues on recent progress or to discuss new strategies for techniques which may lead to a unique and worthwhile solution. I say unique because in industry intellectual property is protected and we all have to be sure that any correction solution does not infringe on the work of others, and that it can itself be protected. I work closely on projects with one colleague in particular for which we have regular meetings and discussions with the research manager. This is where progress on a specific project is charted and the next step in research direction determined.

I am periodically assigned a new project. It could be an entirely new area of research seeking to overcome an imaging problem or it might overlap a previous project that needs integration of a new solution. Evolving and changing projects ensures that research is kept fresh and current. In fact this keeps it more that current, because, after all, research in this field determines and creates the technology of the future... whatever it may be.

Larry Murray

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Larry Murray graduated with a BSc in Physics with Astrophysics from Queen's University, Belfast, in 1999 and MSc in Opto-electronics and Information Processing Theory, also from Queen's, in 2000. He then spent a year at New Jersey Institute of Technology (NJIT), New Jersey taking graduate courses, and spent 6 months in Sunspot, New Mexico, at the National Solar Observatory doing research. All of which was part of a Ph. D. in Solar Physics. However, on his return to Ireland he began another Ph. D. in 2002 in the Applied Optics Group at NUI Galway and graduated with a Ph. D. in Applied Optics in 2007.