LightMachinery
Excellence in Lasers and Optics

OPTICS -

LightMachinery designs and manufactures high quality optics for CO2, excimer and solid state lasers and laser-based systems.

For those not familiar, Wikipedia tells us that “Optics is the branch of physics which involves the behaviour and properties of light including its interactions...” a field in which LightMachinery in Ottawa, Canada has built unique expertise.

Optics are designed for use with laser systems or in laser systems and LightMachinery design for both usages. The technique of fluid jet polishing enables the creation of near perfect optical components. Developed by LightMachinery, the power of the fluid jet polishing can produce optics that meet extremely tight tolerances for thickness uniformity. It also enables the creation of arbitrary shapes within surfaces - something that is simply impossible using conventional polishing technologies.

An example of this is the Michelson interferometer – one of which went into space on a satellite to observe the sun – that required a good deal of expertise to develop - a challenge that LightMachinery found highly interesting and exciting!

Creating Michelson interferometers requires careful selection and significant testing of options: ‘Polarizing, non-polarizing, cemented, optically contacted (epoxy free bonded), hexagonal, square, small (1mm), large (45mm), UV, visible, IR. Material selection, coating design, modelling of phase & polarization, mechanical design, process development, quality planning, glass shaping and polishing, optical contacting, cementing and finally testing, testing and testing.’

Do you need specialised optics for your work or research? Then check out the revolutionary, free, lens design software, Lens Design Cloud, that allows even novice users to design complex lenses and lens systems. The cloud-based system uses Big Data technology to store thousands of catalogue designs and optimize their performance for your requirements. It is truly a great example of a human / machine learning system. If you are interested at all in lens design, then you are going to be fascinated by this tool!

Like to place an order? Contact Raymax, the Australian Distributor for LightMachinery on 02 9979 7646
During March, Dr Cédric Chaminade attended a training session at HySpex in Norway. A division of Norsk Elktro Optikk (NEO). The company has developed a ‘best in class’ hyperspectral imaging system that is being successfully used across a range of industries. Raymax is privileged to be the Australian distributor.

Cédric’s training commenced with a welcome toboggan in the snow at temperatures of -15 degrees Celsius. Needless to say, he found it a little cold!

The training session included worldwide distributors, users and third-party suppliers how gave presentations of developments in applications in the field using HySpex cameras.

2EXCEL, from the UK, offer hyperspectral and photogrammetric processing, analysis and airborne field collection services using their own aircraft. Developing a 2Excel Remote Sensing (2XLR S) unit that includes NEO HySpex VNIR and SWIR cameras, the team has a highly successful robust, automated processing workflow to transform raw HySpex data into Analysis Ready Products (ARP).

Developments to improve positioning capability of hyperspectral imaging have been undertaken by Applanix in Canada. Their product, Direct Georeferencing (DG) for imaging devices, is recommended by HySpex. By using a HySpex camera mounted on a UAS to measure positioning and orientation, each pixel or point is geocoded to produce a mapping product. The capability of Direct Georeferencing improves the overall efficiency of aerial mapping as it can reduce or completely eliminate the need for ground control points.

Prediktera, a Swedish company, have developed an easy to use software solution for using spectral images, from hyperspectral imaging, called breeze. The software makes it easy to collect and analyse hyper- and multi-spectral images, and then develop and run applications in realtime. This is an important contribution as it assists in managing enormous amounts of data. The software is suitable for analysing food products, pharmaceutical, forensic, medical, or archeological items to list a few.

Want more information? Call Cédric on 02 9979 7646

WHAT’S IN MY INBOX?
Easter! Here is a picture from our local shop that sells hand-made Belgium chocolates! And yes, I bought a chocolate Easter egg!

Happy Easter!