



## **CyberOptics to Present Technical Paper at SPIE Optics + Photonics 2020 On-Line Conference**

**Minneapolis, Minnesota** — July 29, 2020 — [CyberOptics® Corporation](#) (NASDAQ: CYBE), a leading global developer and manufacturer of high-precision 3D sensing technology solutions, will present at the SPIE Optics and Photonics On-Line Conference on August 24 during the [SPIE Optical Engineering and Applications Symposium's](#) verification and alignment session from 8:20 to 10:00am.

Dr. Matthew Jungwirth, Senior Optical Scientist at CyberOptics, and SPIE Senior Member will present the technical paper 'Linearization of defocus for projector optical alignment in structured light illumination systems' at the SPIE Optics + Photonics conference. The paper outlines an advanced manufacturing alignment method that speeds up the process. Dr. Eric Rudd, Electronics Engineer at CyberOptics, is a co-author.

High-quality imaging is typically dependent upon well-focused optical systems. CyberOptics presents a method that linearizes defocus to provide a clear zero-crossing along the optical axis for structured light illumination (SLI) systems. Here, sinusoidal fringes are projected onto a quad target, a diffuse target with different heights along the optical axis in separate quadrants. Shifting the focus alters the fringe contrasts on the quad target. Best focus is achieved when the contrast between the different heights is balanced.

The method was tested using a CyberOptics developed SLI system that utilizes advanced Multiple Reflection Suppression™ (MRS™) technology and compared to a published phase-shifted reconstruction technique. The non-linear defocus behavior was efficiently linearized using the quad target method as evidenced by linear regressions. Focal position estimates agreed well with the phase-shifted technique, thereby demonstrating viability of the method.

For more information, visit [www.SPIE.org](http://www.SPIE.org) or [www.cyberoptics.com](http://www.cyberoptics.com).

### **About CyberOptics**

CyberOptics Corporation ([www.cyberoptics.com](http://www.cyberoptics.com)) is a leading global developer and manufacturer of high-precision 3D sensing technology solutions. CyberOptics' sensors are used for inspection and metrology in the SMT and semiconductor markets to significantly improve yields and productivity. By leveraging its leading edge technologies, the Company has strategically established itself as a global leader in high precision 3D sensors, allowing CyberOptics to further increase its penetration of key vertical markets. Headquartered in Minneapolis, Minnesota, CyberOptics conducts worldwide operations through its facilities in North America, Asia and Europe.

Statements regarding the Company's anticipated performance are forward-looking and therefore involve risks and uncertainties, including but not limited to: a possible world-wide recession or depression resulting from the economic consequences of the Covid-19 pandemic; the negative effect on our revenue and operating results of the COVID-19 crises on our customers and suppliers and the global supply chain; market conditions in the global SMT and semiconductor capital equipment industries; trade relations between the United States and China and other countries; the timing of orders and shipments of our products, particularly our 3D MRS-enabled SQ3000 Multi-Function systems and MX

systems for memory module inspection; increasing price competition and price pressure on our product sales, particularly our SMT systems; the level of orders from our OEM customers; the availability of parts required to meet customer orders; unanticipated product development challenges; the effect of world events on our sales, the majority of which are from foreign customers; rapid changes in technology in the electronics and semiconductor markets; product introductions and pricing by our competitors; the success of our 3D technology initiatives; the market acceptance of our SQ3000 Multi-Function inspection and measurement systems and products for semiconductor advanced packaging inspection and metrology; costly and time consuming litigation with third parties related to intellectual property infringement; the negative impact on our customers and suppliers due to past and future terrorist threats and attacks and any acts of war; and other factors set forth in the Company's filings with the Securities and Exchange Commission.

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