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## 3D FIBER OPTIC INTERFEROMETER

### HARDWARE, CIRCUITS, & SENSORS

Portable coordinate measuring device that provides simple dimensional measurement of 3D machined parts with one micrometer accuracy, generating in-process control data for high precision machine shops.

#### TECHNOLOGY TYPE

Metrology  
Interferometry  
Optical Sensors  
Coordinate Measuring  
Machines

#### STAGE OF DEVELOPMENT

- Proof of concept demonstrated.

- Funded prototype in development.

#### IP PROTECTION

##### **Nationalized PCT Pending in the United States**

Interferometry System and  
Associated Methods  
*US20180051980A1*

##### **Nationalized PCT Pending in the United States and Europe**

Interferometry System and  
Associated Methods  
*WO2017223542A1*

#### LEARN MORE

Reference Numbers: U-5648,  
U-6192, U-6258

#### Nick Wilkes

Technology Manager  
nick.wilkes@tvc.utah.edu  
801-587-0515

#### TECHNOLOGY SUMMARY

Interferometry is a measurement technique that involves the superimposition of light waves, providing distance measurements with great accuracy. Highly accurate 3D measurements can only be made at the expense of time.

The 3D fiber optic interferometer directly measures three-dimensional distance and position with high speed and precision. The device uses light from single mode optical fibers to determine the distance between points in space. It does not require careful alignment of the fibers and can provide determination of absolute position. This device could be utilized in a number of manufacturing and robotic applications since it overcomes many of the difficulties associated with the distance between two articulating points. The device is accurate over one meter distances and would be most useful in machine shops employing large batch statistical process control manufacturing.

#### FEATURES AND BENEFITS

- Increases accuracy of three dimensional positioning measurements to within one micrometer.
- Reduces need for alignment.
- Provides high performance at a low cost.

#### INVENTOR PROFILE

**Clayton C. Williams**, Ph.D., [Professor – Physics & Astronomy](#)

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