

## Optical Data Science II

This conference is no longer accepting submissions.

Late submissions may be considered subject to chair approval. For more information, please contact [Matt Novak](#).

### Important Dates

[SHOW](#) | [HIDE](#)

Abstract Due:  
25 July 2018

Author Notification:  
1 October 2018

Manuscript Due Date:  
9 January 2019

### Conference Committee

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## Call for Papers

The exponential increase in the amount of data created every day has led to a new era in data exploration and utilization. Optical sensors and fibers have enabled capture and transfer of massive data across both short and long distances and have formed the backbone of the internet. The field of biological research healthcare has been influenced radically by the developments in photonics technologies ranging from imaging, tomography to spectroscopy. Optical sensors are able to collect a massive amount of data at high frame rates. These trends are fueling the need and the opportunity for artificial intelligence (AI) techniques that take advantage of the unique properties of optics or are customized for processing of optical data. Early examples include integration of artificial intelligence with various types of microscopy for classification of biological cells and tissue, AI enhancement of image resolution, improvement of optical sensors and receivers using machine learning, and optical implementations of the canonical neural networks. In the field of cybersecurity, optics can offer means to generate and distribute keys for encrypted communication.

The photonic applications have served as an important source of data ranging from the photographs taken by almost 5 billion cellphones all the way to the images and data created by optical measuring systems. Going forward, the convergence of AI with cutting-edge optics will have a transformative impact on communication, imaging and sensing systems.

The goal of this conference is to serve as a unique platform for bringing together artificial intelligence and photonics researchers from around the world to showcase the newest trends and best practices. Researchers from leading companies and universities present their high-impact research and products and exchange new ideas.

Topics of interest include but are not limited to:

- computational imaging
- augmented reality
- structured illumination
- neural imaging
- target recognition
- optical random number generation
- optical encryption and security
- digital pathology
- smart microscopy
- digital holography
- super resolution imaging

- optical data compression
  - optical phase recovery
  - optics inspired algorithms
  - photonic hardware accelerators
  - computational sensors
  - optical information theory
  - analog optical computing
  - metaphoric computing
  - nonlinear Fourier transform
  - machine learning for optical sensing and metrology
  - machine learning in optical receivers and networks
  - optical classification and inference.
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