Front Matter: Volume 11299


Event: SPIE OPTO, 2020, San Francisco, California, United States
AI and Optical Data Sciences

Bahram Jalali
Ken-ichi Kitayama
Editors

4–5 February 2020
San Francisco, California, United States

Sponsored and Published by
SPIE
# Contents

## AR/VR SCIENCES I

11299 04  Notes on the design of free-form optics [11299-3]

## RESERVOIR COMPUTING

11299 08  Time delay reservoir computing with VCSEL (Keynote Paper) [11299-7]

11299 09  Optical reservoir computer using speckle in a multimode waveguide [11299-8]

11299 0A  Time-multiplexed photonic reservoir computing [11299-9]

## PHOTONIC HARDWARE ACCELERATORS

11299 0H  A scalable optical neural network architecture using coherent detection [11299-16]

## OPTICAL COMPUTING

11299 0J  Synchronously-pumped OPO coherent Ising machine: benchmarking and prospects [11299-18]

## COMPUTATIONAL IMAGING

11299 0N  Origins and mitigations of some automotive pulsed lidar artifacts [11299-22]

11299 0P  Optical-coherence-tomography-based algorithm for handwriting forensic analysis [11299-24]
| 11299 10 | Electronic polarization-division demultiplexing based on artificial neural networks in optical communication systems [11299-35] |
| 11299 15 | Computational-complexity comparison of time- and frequency-domain artificial neural networks for optical nonlinearity compensation [11299-40] |
| 11299 16 | Overfitting of artificial-neural-network-based nonlinear equalizer for multilevel signals in optical communication systems [11299-41] |
| 11299 17 | An ANN–based embedded hardware for gas leak detection using a SWIR imaging system [11299-42] |
Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Alhosani, A., 17
Almurshidi, M., 17
Alhmoudi, F., 17
Benítez, P., 04
Bernstein, Liane, 0H
Buljan, M., 04
Chaves, J., 04
de Freitas, Anderson Z., 0P
de Sousa Ribeiro, Lucas Antonio, 0P
Englund, Dirk R., 0H, 0J
Grabovičkić, D., 04
Hamerly, Ryan, 0H, 0J
Harkhoe, Krishan, 0A
Héroux, Jean Benoit, 08
Hirose, Akira, 08
Ikuta, Kai, 16
Inagaki, Takahiro, 0J
Kanazawa, Naoki, 08
Kurokawa, Yuichiro, 10
Kyono, Takeru, 10, 15
Luengo-Kovac, Marta, 09
Marandi, Alireza, 0J
McMahon, Peter L., 0J
Meribout, M., 17
Miñano, J. C., 04
Mohedano, R., 04
Nakamura, Moriya, 10, 15, 16
Nakane, Ryosho, 08
Nakano, Daiju, 08
Nascimento Siqueira, Andressa, 0P
Negrini Neto, Osvaldo, 0P
Nikolić, M., 04
Numata, Hidetoshi, 08
Otsuka, Yuta, 16
Paudel, Uttam, 09
Pauwels, Jaëli, 0A
Sarkis, Jorge E. S., 0P
Shand, Mark A., 0N
Shaw, Thomas J., 09
Sludds, Alexander, 0H
Soljacic, Marin, 0H
Takeda, Seiji, 08
Tanaka, Gouhei, 08
Valley, George C., 09
Van der Sande, Guy, 0A
Venturelli, Davide, 0J
Verschaffelt, Guy, 0A
Yamamoto, Yoshihisa, 0J
Yamane, Toshiyuki, 08
Conference Committee

Symposium Chairs

**Sailing He**, KTH Royal Institute of Technology (Sweden) and Zhejiang University (China)
**Yasuhiro Koike**, Keio University (Japan)

**Symposium Co-chairs**

**Connie J. Chang-Hasnaian**, University of California, Berkeley (United States)
**Graham T. Reed**, Optoelectronics Research Centre, University of Southampton (United Kingdom)

**Program Track Chair**

**David L. Andrews**, University of East Anglia (United Kingdom)

**Conference Chairs**

**Ken-ichi Kitayama**, The Graduate School for the Creation of New Photonics Industries (Japan)
**Bahram Jalali**, University of California, Los Angeles (United States)

**Conference Program Committee**

**Michele Caselle**, Karlsruher Institut für Technologie (Germany)
**Claire Lifan Chen**, Lumentum (United States)
**Mark A. Foster**, Johns Hopkins University (United States)
**Robin Hassel**, Acqiris SA (Switzerland)
**Barmak Heshmat**, BRELYON, Inc. (United States)
**Robert Alexander Huber**, Universität zu Lübeck (Germany)
**Yunshan Jiang**, Waymo, LLC (United States)
**Koichiro Kishima**, Pinpoint Photonics (Japan)
**Cejo K. Lonappan**, SiLC Technologies, Inc. (United States)
**Ruben S. Luis**, National Institute of Information and Communications Technology (Japan)
**Aydogan Ozcan**, University of California, Los Angeles (United States)
**YongKeun Park**, KAIST (Korea, Republic of)
**Demetri Psaltis**, École Polytechnique Fédérale de Lausanne (Switzerland)
**Varun Raghunathan**, Indian Institute of Science (India)
**Natan T. Shaked**, Tel Aviv University (Israel)
**Nabeel Shirazi**, Xilinx, Inc. (United States)
Madhuri Suthar, University of California, Los Angeles (United States)
George C. Valley, The Aerospace Corporation (United States)
Ming C. Wu, University of California, Berkeley (United States)
Lei Zhang, The Hong Kong Polytechnic University (Hong Kong, China)
Darko Zibar, Technical University of Denmark (Denmark)

Session Chairs

1. AR/VR Sciences I
   Barmak Heshmat, BRELYON, Inc. (United States)

2. AR/VR Sciences II
   Reza Khorasaniejad, Harvard John A. Paulson School of Engineering and Applied Sciences (United States)

3. Reservoir Computing
   Bahram Jalali, University of California, Los Angeles (United States)

4. Photonic Hardware Accelerators
   Achuta Kadambi, University of California, Los Angeles (United States)

5. Optical Computing
   Ken’ichi Kitayama, The Graduate School for the Creation of New Photonics Industries (Japan)

6. Computational Imaging
   Madhuri Suthar, University of California, Los Angeles (United States)

7. Deep Learning
   David B. Borlaug, The Aerospace Corporation (United States)