PROGRESS IN BIOMEDICAL OPTICS AND IMAGING

Clinical and Translational Neurophotonics 2019

Steen J. Madsen Victor X. D. Yang Nitish V. Thakor Editors

2–3 February 2019 San Francisco, California, United States

Sponsored and Published by SPIE

Volume 10864

Proceedings of SPIE, 1605-7422, V. 10864

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIEDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings:

Author(s), "Title of Paper," in *Clinical and Translational Neurophotonics 2019*, edited by Steen J. Madsen, Victor X. D. Yang, Nitish V. Thakor, Proceedings of SPIE Vol. 10864 (SPIE, Bellingham, WA, 2019) Seven-digit Article CID Number.

ISSN: 1605-7422 ISSN: 2410-9045 (electronic)

ISBN: 9781510623705 ISBN: 9781510623712 (electronic)

Published by **SPIE** P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time)· Fax +1 360 647 1445 SPIE.org Copyright © 2019, Society of Photo-Optical Instrumentation Engineers.

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 1605-7422/19/\$18.00.

Printed in the United States of America by Curran Associates, Inc. under license from SPIE.

Publication of record for individual papers is online in the SPIE Digital Library.



Paper Numbering: Proceedings of SPIE follow an e-First publication model. A unique citation identifier (CID) number is assigned to each article at the time of publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

- The first five digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

Contents

- v Authors
- vii Conference Committee

OPERATIVE AND POST OPERATIVE THERAPY II

1086406Differentiation of healthy and malignant brain tissues using terahertz pulsed spectroscopy and
optical coherence tomography [10864-5]

OPTICAL SPECTROSCOPY: PRE-CLINICAL I

 I 0864 0C
 Functional and multimodal photoacoustic microscopy for brain mapping and surgery

 [10864-11]
 [10864-11]

OPTICAL SPECTROSCOPY: CLINICAL

- 10864 0KIntraoperative vascular detection and three-dimensional reconstruction using statistical
variance and infrared optical tracking methods in high frequency ultrasound imaging
[10864-19]
- 10864 0L Correlation between PET-derived cerebral amyloid status and retinal image features using a hyperspectral fundus camera [10864-20]
- Using fNIRS to identify the brain activation and networks associated with English versus Chinese simultaneous interpreting [10864-23]

OPTICAL SPECTROSCOPY: PRE-CLINICAL III

- 10864 OP Design considerations for a miniature multicontrast neuroimager [10864-33]
- 10864 ORAssessing mouse brain tissue refractive index in the NIR spectral range utilizing spatial
frequency domain imaging technique combined with processing algorithms [10864-15]
- 10864 0SApplication of machine learning techniques in investigating the relationship between
neuroimaging dataset measured by functional near infra-red spectroscopy and behavioral
dataset in a moral judgment task [10864-32]

I OBIER SESSION	PO	STE	RS	ESS	ION
-----------------	----	-----	----	-----	-----

- 10864 0U Functional near-infrared spectroscopy as a window to cardiovascular health [10864-28]
- 10864 0V First principle modeling of simultaneous VASO and BOLD fMRI with two-photon microscopy for optimal quantification of CBV changes in humans [10864-29]