Design and Quality for Biomedical Technologies XII

Rongguang Liang Jeeseong Hwang T. Joshua Pfefer Gracie Vargas Editors

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

Sponsored and Published by SPIE

Volume 10870

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 Design and Quality for Biomedical Technologies XII, edited by Rongguang Liang, Jeeseong Hwang, T. Joshua Pfefer, Gracie Vargas, Proceedings of SPIE Vol. 10870 (SPIE, Bellingham, WA, 2019) Seven-digit Article CID Number.

ISSN: 1605-7422

ISSN: 2410-9045 (electronic)

ISBN: 9781510623828

ISBN: 9781510623835 (electronic)

Published by

SPIF

P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time)· Fax +1 360 647 1445 SPIF 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 ∨ii	Authors Conference Committee
	fNIR/IR DEVICES AND CONTRAST ENHANCEMENT
10870 0A	The sub-system validation of solid state detector in BD Accuri C6 plus flow cytometers [10870-9]
	HYPERSPECTRAL AND SPECTROSCOPY DEVICES
10870 0D	Combined 3D model acquisition and autofocus tracking system for hyperspectral line-scanning devices [10870-12]
10870 OF	Spectroscopic characterization of radiochromic films for radiation therapy dosimetry [10870-15]
	MOBILE, PORTABLE, AND IMPLANTABLE DEVICES
10870 OH	MOBILE, PORTABLE, AND IMPLANTABLE DEVICES Towards a portable laser speckle based device to evaluate the level of atrophy in tissue [10870-17]
10870 OH	Towards a portable laser speckle based device to evaluate the level of atrophy in tissue
10870 OH	Towards a portable laser speckle based device to evaluate the level of atrophy in tissue [10870-17]
	Towards a portable laser speckle based device to evaluate the level of atrophy in tissue [10870-17] NIR PHANTOMS AND PHANTOM DESIGN Digital phantom for time-domain near-infrared spectroscopy of tissue: concept and
10870 OK	Towards a portable laser speckle based device to evaluate the level of atrophy in tissue [10870-17] NIR PHANTOMS AND PHANTOM DESIGN Digital phantom for time-domain near-infrared spectroscopy of tissue: concept and proof-of-principle experiments (Invited Paper) [10870-20] Custom bile duct phantom for first-in-human multiplexed NIR fluorescence peptide imaging

POSTER SESSION

10870 0Y	Acousto-optic tunable filter-based hyperspectral imaging system characterization [10870-13]
10870 OZ	3D-printed human-centered design of fNIRS optode for the portable neuroimaging [10870-31]