DIGITAL PATHOLOGY REALIZED

2018 PROGRAM
MAY 21–24, 2018 | PITTSBURGH, PA
PATHOLOGYINFORMATICS.ORG

Brought to you by the Association for Pathology Informatics.
Greetings and welcome to all of you.

Thank you for joining us! The Pathology Informatics Summit 2018 is the 28th sequential year of a conference legacy resulting from the merger of two long-standing and successful previous conference series: APIII and Lab InfoTech Summit/AIMCL. All together, these two prior meetings, along with the PI-Summit series, have offered over 40 combined years of excellence in Pathology Informatics instruction and scholarly exchange for the pathology specialty.

Over these four decades, our specialty has witnessed a progressive succession from coverage of the fundamentals of computing and information technology, to increasingly sophisticated exemplars where cogent use of information technology can be seen to greatly enhance both patient safety as well and the diagnostic and predictive utility of the primary data generated by the collective fields of Anatomic Pathology and Laboratory Medicine. In consonance with the continuing evolution of the specialty, this year is particularly auspicious in that several watershed events—FDA clearance of whole slide imaging for primary diagnosis, and the explosive growth in understanding of the utility of machine learning techniques for exploration of pathology data—are creating very rich substrate for Pathology Informatics to generate valuable data products and tools for our clinical colleagues. This year’s meeting in Pittsburgh promises to be a singularly memorable event and we cordially welcome you back to the Pathology Informatics Summit 2018. The conference is brought to you by the Association for Pathology Informatics.

The conference is composed of a one-day pre-conference workshop segment, followed by the three-day meeting proper. The workshops are divided into three instructional segments (API—Pathology Informatics Boot Camp, HIMA—HIMA Imaging Science and International Imaging, and finally, DPA—Computational Pathology: The Next Wave of Digital Pathology), and additionally, a Connectathon Event on the Exhibit Floor, facilitated by senior medical imaging standards experts from the DICOM community, whereby attendees will be able to interact with Whole Slide Imaging vendors in our exhibit hall, and in so doing, validate that cross-vendor image and case interoperability is a reality.

This year’s opening plenary sessions showcase a number of the most exciting developments in Pathology Informatics, including: coverage of an actual WSI primary diagnosis workflow implementation by Dr. Anil Parwani, an overview of machine learning from one of foremost experts in the world, Dr. Jeroen van der Laak, and coverage of some of the latest developments in advanced optical tissue interrogation techniques. In addition, the meeting continues its tradition of offering two parallel tracks of short lectures on topics in the fields of Research Informatics and Applied Pathology Informatics. Similarly, we continue our tradition of offering paper posters and short scientific oral presentations, with the best of the latter category being promoted to a third track of formal podium presentations.
Refreshment and lunch breaks will provide you with ample time to browse the exhibitor ballroom, with displays by 23 exhibitors with IT-related products and services. This represents one of the largest assemblages of pathology informatics vendors available at any conference in the country. We guarantee that you will gain a host of new ideas and solutions from all of these resources.

All of the faculty PowerPoint lectures, along with synchronized audio, will be posted on the conference website (PathologyInformatics.org) shortly after the conference adjournment. We invite you to take advantage of this rich educational resource in upcoming months, to reinforce what you will learn in the coming days of the Summit. The conference planning committee members will be available throughout the conference to solicit ideas from all of you about how the conference can be improved for our next Summit, which will be also held in May of 2019, in Pittsburgh.

Finally, the organizing committee would like to recognize Roche and Leica Biosystems for their generous sponsorship, in their capacity of serving as our two Diamond-level sponsors this year.

Ulysses J. Balis, Conference Director
J. Mark Tuthill, Conference Co-Director
Bruce A. Friedman, Conference Planning Committee Member
Anil Parwani, Conference Planning Committee Member
Veronica Klepeis, Conference Planning Committee Member
Nova Marie Smith, Senior Conference Manager
Beth Gibson, Conference Manager

“...over 40 combined years of excellence in Pathology Informatics instruction and scholarly exchange for the pathology specialty.”
We gratefully acknowledge support from all of our exhibitors. Exhibitor Map located on inside back cover.

**DIAMOND LEVEL**

- Leica Biosystems
- Roche Diagnostics

**PLATINUM LEVEL**

- Hamamatsu Corporation

**GOLD LEVEL**

- Thermo Fisher Scientific

**SILVER LEVEL**

- Abbott Informatics
- Association for Molecular Pathology
- Caliber Imaging & Diagnostics, Inc.
- General Data Healthcare, Inc.
- Indica Labs
- Pathcore
- Philips Healthcare
- Sakura Finetek USA, Inc.
- Sectra Pathology PACS
- Sunquest Information Systems, Inc.
- Technidata
- Visiopharm
- Voicebrook, Inc.

**BRONZE LEVEL**

- Augmentiqs
- Corista
- Mikrosan
- Visiun, Inc.

**NON-COMMERCIAL/GOVERNMENTAL RESOURCE ORGANIZATIONS**

- DICOM® (Digital Imaging and Communications in Medicine)
- The IVD Industry Connectivity Consortium (IICC)
# Table of Contents

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Award Sponsors  
Individual Donors

7 Overall Objectives  
Continuing Medical Education (CME)  
Accreditation Information

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9 **Conference Schedule**  
  9-10 Monday, May 21  
  11-12 Tuesday, May 22  
  13-14 Wednesday, May 23

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42 Map of Exhibitors  
Exhibitor Ballroom Hours

BACK COVER  
Map of Hotel
API and the 2018 PI-Summit Planning Committee are pleased to have received financial support to fund the Travel Awards for trainees to attend. Awards are presented at the Travel Awardee Luncheon by the Co-Chairs of the API Training and Education Committee: Victor Brodsky, MD and Toby Cornish, MD, PhD.

Jihan Aljabban, BA, MMSc  
The Ohio State University

Dinesh Pradhan, MD  
University of Pittsburgh Medical Center

Keluo Yao, MD  
Michigan Medicine/University of Michigan

Laraib Safeer, BS  
Baylor College of Medicine

Dustin Bunch, PhD  
Yale-New Haven Hospital

IMAN Tavassoly, MD, PhD  
Icahn School of Medicine at Mount Sinai

Jihan Aljabban, BA, MMSc  
The Ohio State University

Naohiro Uraoka, MD, PhD  
Memorial Sloan Kettering Cancer Center

Dustin Bunch, PhD  
Yale-New Haven Hospital

Drew Williamson, BA  
Case Western Reserve University School of Medicine

Thomas Chong, MD, MS  
University of California, Los Angeles

Naohiro Uraoka, MD, PhD  
Memorial Sloan Kettering Cancer Center

Thomas Durant, MPT, MD  
Yale-New Haven Hospital

Drew Williamson, BA  
Case Western Reserve University School of Medicine

Alex Greninger, MD, PhD  
University of Washington

Edward Klatt, MD  
Director of the Biomedical Problems Program  
Professor of Pathology, Mercer University

Christina Gutierrez, MD  
Emory University School of Medicine

MARY E. Edgerton, MD, PhD  
Associate Professor, Breast Pathology and Pathology Informatics  
UT MD Anderson Cancer Center

Andrew Norgan, MD, PhD  
Mayo Clinic
OVERALL OBJECTIVES

- Present practical and emerging solutions for automated information and image management in pathology and the clinical laboratories.

- Describe how workflow in the clinical laboratories and pathology can be supported and enhanced by new software and hardware solutions.

- Understand the various software and hardware products available in the clinical laboratory and pathology market by interacting with a large number of exhibitors.

- Present new research in pathology informatics on the basis of submitted competitive scientific abstracts and a dedicated lecture track as well as selected podium presentations.

- Provide and present a forum for and best practices regarding basic pathology informatics instruction for house officers and fellows in pathology training programs and clinical informatics fellowship design.

CONTINUING MEDICAL EDUCATION (CME) ACCREDITATION AND DESIGNATION STATEMENT

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education through the joint providership of the American Society for Clinical Pathology (ASCP) and the Association of Pathology Informatics (API). The ASCP is accredited by the ACCME to provide continuing medical education for physicians.

The ASCP designates this live activity for a maximum of 22.75 AMA PRA Category 1 Credit(s)™. Physicians should claim only credit commensurate with the extent of their participation in the activity.

The ASCP is also accredited by the American Board of Pathology to offer Self-Assessment Modules (SAMs) for the purpose of meeting the American Board of Pathology requirements for Maintenance of Certification. Registrants must take and pass the post-test in order to claim SAMs credit(s). The ASCP designates this live activity for a maximum of 22.75 CME/SAMs credits.
REGISTRATION INFORMATION

Please see the Hotel Map (back cover) and Exhibitor Map (inside back cover).

MAIN REGISTRATION in the Ballroom Level Lobby
The General Attendees, Faculty, Travel Awardees, and Abstracts and Poster Presenters will check-in/register here.

- Monday – Wednesday: 7 a.m.–5 p.m.
- Thursday: 7:30 a.m.–Noon

EXHIBITOR REGISTRATION in the Grand Ballroom
All Exhibitors / Sponsors will check-in/register here.

- Monday: 8 a.m.–5 p.m.
- Tuesday: 7 a.m.–5 p.m.

REGISTRATION DESK STAFF
Michelle Bisceglia
Erminia Palmieri
Christina Dutzik
Beth Gibson
Gabrielle Smith
Nova Marie Smith

IT STAFF
John Hamilton
Brian Royer

HOTEL WIFI NETWORK

Connect to Wyndham Meeting WIFI network:

Username: API2018
Password: PISUMMIT18
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00–8:10 a.m.</td>
<td>Introduction</td>
<td>GRAND BALLROOM 1</td>
<td>Toby Cornish, MD, PhD</td>
</tr>
<tr>
<td>8:10–8:50 a.m.</td>
<td>The LIS – Clinical Pathology</td>
<td></td>
<td>Jordan Olson, MD</td>
</tr>
<tr>
<td>8:50–9:30 a.m.</td>
<td>The LIS – Microbiology and Special Coag</td>
<td></td>
<td>Ji Yeon Kim, MD</td>
</tr>
<tr>
<td>9:30–10:10 a.m.</td>
<td>The LIS – Blood Bank/Transfusion Medicine</td>
<td></td>
<td>Kinjal Shah, MD</td>
</tr>
<tr>
<td>10:10–10:40 a.m.</td>
<td>BREAK</td>
<td></td>
<td></td>
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<tr>
<td>10:40–11:20 a.m.</td>
<td>The LIS – Anatomic Pathology</td>
<td></td>
<td>Joe Sirintrapun, MD</td>
</tr>
<tr>
<td>11:20–Noon</td>
<td>The LIS – Molecular/Genomics</td>
<td></td>
<td>Alexis Carter, MD</td>
</tr>
<tr>
<td>Noon–1:00 p.m.</td>
<td>LUNCH</td>
<td></td>
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</tr>
<tr>
<td>1:00–1:10 p.m.</td>
<td>Introduction</td>
<td></td>
<td>Victor Brodsky, MD</td>
</tr>
<tr>
<td>1:10–1:50 p.m.</td>
<td>The Central IT Perspective</td>
<td></td>
<td>Victor Brodsky, MD</td>
</tr>
<tr>
<td>1:50–2:30 p.m.</td>
<td>ETL and Data Warehouses</td>
<td></td>
<td>Chris Williams, MD</td>
</tr>
<tr>
<td>2:30–3:10 p.m.</td>
<td>Laboratory Data Reporting and Analytics</td>
<td></td>
<td>Brian Jackson, MD</td>
</tr>
<tr>
<td>3:10–3:40 p.m.</td>
<td>BREAK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:40–4:20 p.m.</td>
<td>Machine Learning Fundamentals</td>
<td></td>
<td>David McClintock, MD</td>
</tr>
<tr>
<td>4:20–5:00 p.m.</td>
<td>Computational Pathology</td>
<td></td>
<td>Toby Cornish, MD, PhD</td>
</tr>
</tbody>
</table>

CONTINUED ON PAGE 10
# Workshop C (All Day)

**HIMA Imaging Science and International Imaging**

**Coordinator / Moderator:** Metin Gurcan, PhD

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Description</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00–8:05 a.m.</td>
<td>Opening Remarks</td>
<td>Metin Gurcan, PhD</td>
</tr>
<tr>
<td>8:05–8:55 a.m.</td>
<td>Stain-Free Slide-Free Molecular Histopathology Using Multimodal Multiphoton Microscopy</td>
<td>Stephen Boppart, MD, PhD</td>
</tr>
<tr>
<td>8:55–9:50 a.m.</td>
<td>Scalable and Reproducible Scientific Image Informatics</td>
<td>B.S. Manjunath, PhD</td>
</tr>
<tr>
<td>9:50–10:10 a.m.</td>
<td>Refreshment Break</td>
<td></td>
</tr>
<tr>
<td>10:10–11:05 a.m.</td>
<td>Top 5 Questions About Developing Computational Pathology Algorithms: Answers from a Practicing Pathologist and Computational Biologist</td>
<td>Liron Pantanowitz, MD + Keith Callenberg, PhD</td>
</tr>
<tr>
<td>11:05–Noon</td>
<td>Understanding Micro-Patterns by Computational Analysis</td>
<td>Eduardo Romero, MD, PhD</td>
</tr>
<tr>
<td>Noon–1:00 p.m.</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>1:00–1:55 p.m.</td>
<td>Computational Pathology at Scale: Changing Clinical Practice One Petabyte at a Time</td>
<td>Thomas Fuchs, PhD</td>
</tr>
<tr>
<td>1:55–2:50 p.m.</td>
<td>The Digital Morphology in Hematology Complements the Microscopic Skills in Our Day-to-day and Tomorrow’s Work</td>
<td>Mohamed Salama, MD</td>
</tr>
<tr>
<td>2:50–3:10 p.m.</td>
<td>Refreshment Break</td>
<td></td>
</tr>
<tr>
<td>3:10–4:05 p.m.</td>
<td>Learning To Analyze Breast Cancer Histopathology</td>
<td>Josien Pluim, PhD</td>
</tr>
<tr>
<td>4:05–5:00 p.m.</td>
<td>Panel Discussion</td>
<td></td>
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</tbody>
</table>

# Digital Pathology Association Companion Meeting (5:00–7:30 p.m.)

**Computational Pathology: The Next Wave of Digital Pathology**

**Moderator:** Anil Parwani, MD, PhD, MBA

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Description</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00–5:10 p.m.</td>
<td>Introduction/Opening remarks</td>
<td>Anil Parwani, MD, PhD, MBA</td>
</tr>
<tr>
<td>5:10–5:45 p.m.</td>
<td>Future of Computational Pathology: Driving Innovation in Pathology Diagnostics</td>
<td>Thomas J. Fuchs, PhD</td>
</tr>
<tr>
<td>5:45–6:20 p.m.</td>
<td>The Nuts and Bolts of Computational Pathology: Considering Costs, Resources, Infrastructure Needs, and Barriers to Adoption</td>
<td>David McClintock, MD</td>
</tr>
<tr>
<td>6:20–6:55 p.m.</td>
<td>Platform for Quantitative Evaluation of Spatial Intratumor Heterogeneity in Multiplexed Fluorescence Images</td>
<td>Chakra Chennubhotla, PhD</td>
</tr>
<tr>
<td>6:55–7:25 p.m.</td>
<td>Computational Cytopathology: Past &amp; Prospective Apps</td>
<td>Liron Pantanowitz, MD</td>
</tr>
<tr>
<td>7:25–7:30 p.m.</td>
<td>Wrap Up</td>
<td>Anil Parwani, MD, PhD, MBA</td>
</tr>
</tbody>
</table>

**Monday Night Dinner on Your Own**
TUESDAY, MAY 22

7:00-8:00 a.m. BREAKFAST + DIAMOND EXHIBITOR PRESENTATION

Join Us! Diamond Exhibitor Presentation @ 7:00 a.m. GRAND BALLROOM 1

Leica Biosystems presents “Antibodies to Artificial Intelligence”
7:00-8:00 a.m. in Grand Ballroom 1

TUESDAY MORNING SHORT ABSTRACT PRESENTATIONS
7:45-9:00 a.m.

SHORT ABSTRACT LECTURES SCHEDULE DETAILS ON PAGE 16

<table>
<thead>
<tr>
<th>Location</th>
<th>Moderator</th>
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</thead>
<tbody>
<tr>
<td>Grand Ballroom</td>
<td>Ulysses Balis, MD</td>
</tr>
<tr>
<td>King’s Garden 1</td>
<td>Toby Cornish, MD, PhD</td>
</tr>
<tr>
<td>King’s Garden 2/3</td>
<td>Mike Feldman, MD</td>
</tr>
<tr>
<td>Brigade</td>
<td>Alexis Carter, MD</td>
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</tbody>
</table>

TUESDAY MORNING ROUND TABLE SESSION
9:00-10:20 a.m.

Pathology Informatics: The Journey
Mentoring Session: Master Class in Career Development for Aspiring Pathology Informaticists

Mentor Panelists: Bruce Friedman, J. Mark Tuthill, Ulysses Balis, Anil Parwani, Alexis Carter, Veronica Klepeis. Moderator: Ulysses Balis, MD

- Participation first come, first served seating
- Limit 60 participants max. at 6 tables of 10
- Direct interaction with faculty members
- 3 table rotations per session / 25-35 minutes of discussion

TUESDAY TRACKS ON NEXT PAGE

2018 POSTER PRESENTATIONS on view 10:20-11:20 a.m. and 3:35-4:00 p.m.
SEE PAGE 19 FOR SCHEDULE
# TUESDAY MORNING TRACK PRESENTATIONS

## TRACKS:

<table>
<thead>
<tr>
<th>Track</th>
<th>Moderator</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Research Informatics</td>
<td>Mike Feldman, MD, PhD</td>
<td>Kings Garden 2/3</td>
</tr>
<tr>
<td>2. Applied Informatics Global Health Segment</td>
<td>Ray Aller, MD</td>
<td>Grand Ballroom 1</td>
</tr>
<tr>
<td>3. Selected Platform Lectures</td>
<td>David McClintock, MD</td>
<td>Kings Garden 1</td>
</tr>
</tbody>
</table>

## Presentations

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00–9:35 a.m.</td>
<td>Multiplex Immunofluorescence Staining, Polaris Scanning, and Multispectral Analysis (Jaime Rodriguez-Canales, MD, FEBP)</td>
</tr>
<tr>
<td>9:35–9:45 a.m.</td>
<td>Ten Minute Break to Switch Lectures</td>
</tr>
<tr>
<td>9:45–10:20 a.m.</td>
<td>A Journey of Transforming Lab Data Into Knowledge (Daniel Herman, MD, PhD)</td>
</tr>
<tr>
<td>10:20–11:20 a.m.</td>
<td>Break, Browse Exhibits + Poster Sessions (Page 19)</td>
</tr>
<tr>
<td>11:20–Noon</td>
<td>Tales of Multiplexing... 50 Shades of Grayscale (Michael Feldman, MD, PhD)</td>
</tr>
<tr>
<td>Noon–1:00 p.m.</td>
<td>Lunch Break + Diamond Exhibitor Presentation</td>
</tr>
</tbody>
</table>

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### Roche presents

“Digital Pathology Diagnostic Tools—Today and Tomorrow”

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### 2018 POSTER PRESENTATIONS

on view 10:20-11:20 a.m. and 3:35-4:00 p.m. See page 19 for schedule
### TUESDAY AFTERNOON PLENARY PRESENTATIONS

**SESSION 1:** Update on Digital Pathology Workflow, Advanced Microscopy, WSI, Machine Learning, and Reporting  
**Moderator:** Ulysses Balis, MD  
**GRAND BALLROOM 1**

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Presenter(s)</th>
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</thead>
<tbody>
<tr>
<td>1:00–1:05 p.m.</td>
<td>Opening Welcome to PI-Summit</td>
<td>Ulysses Balis, MD and J. Mark Tuthill, MD</td>
</tr>
<tr>
<td>1:05–1:35 p.m.</td>
<td>Houston: We Have Liftoff–The Initial Experience at Ohio State University with US-based Whole Slide Imaging for Primary Diagnosis</td>
<td>Anil Parwani, MD, PhD</td>
</tr>
<tr>
<td>1:35–2:05 p.m.</td>
<td>Tackling the Challenges that Still Exist in Computational Pathology</td>
<td>Jeroen van der Laak, PhD</td>
</tr>
<tr>
<td>2:05–2:35 p.m.</td>
<td>Implementing Digital Whole Slide Imaging for Primary Diagnosis: Report from Granada Two Years After Initial Deployment</td>
<td>Juan Retamero, MD</td>
</tr>
<tr>
<td>2:35–3:05 p.m.</td>
<td>Open-top Light-sheet Microscopy for Nondestructive Slide-Free 3D Pathology</td>
<td>Jonathan T. C. Liu, PhD</td>
</tr>
<tr>
<td>3:05–3:35 p.m.</td>
<td>Raman Backscatter Microscopy: A New Tool for Practicing Surgical Pathologists</td>
<td>Sandra Camelo-Piragua, MD</td>
</tr>
<tr>
<td>3:35–4:00 p.m.</td>
<td><strong>BREAK / BROWSE EXHIBITS AND POSTER SESSIONS</strong></td>
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</tbody>
</table>

**SESSION 2:** Continuation  
**Moderator:** Ulysses Balis, MD  
**GRAND BALLROOM 1**

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00–4:45 p.m.</td>
<td>Recent Insights and Developments in the Application of Machine Learning to Histopathological Diagnosis</td>
<td>Ulysses Balis, MD and Thomas Flotte, MD, PhD</td>
</tr>
<tr>
<td>4:45–5:30 p.m.</td>
<td>AJCC 8th Edition and Pathology Cancer Reporting</td>
<td>Thomas P. Baker, MD</td>
</tr>
<tr>
<td>5:30–7:00 p.m.</td>
<td><strong>Opening Night Reception</strong></td>
<td></td>
</tr>
<tr>
<td>7:15–9:30 p.m.</td>
<td><strong>Women in Pathology Informatics Networking Event</strong></td>
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</table>

**EXHIBITOR BALLROOM**

**SKYLOUNGE, 24TH FLOOR**  
A free networking event open to women working in the field of Pathology Informatics who are registered for the 2018 Pathology Informatics Summit.
WEDNESDAY, MAY 23

7:00–8:00 a.m. BREAKFAST

WEDNESDAY MORNING SHORT ABSTRACT PRESENTATIONS
7:45–9:00 a.m.

SHORT ABSTRACT LECTURES SCHEDULE DETAILS ON PAGE 17

Location: Grand Ballroom King’s Garden 1 King’s Garden 2/3 Brigade
Moderator: Anil Parwani, MD David McClintock, MD Veronica Klepis, MD, PhD Mark Tuthill, MD

WEDNESDAY MORNING TRACK PRESENTATIONS

TRACKS:

1. Research Informatics
   Moderator: Liron Pantanowitz, MD
   KINGS GARDEN 2/3

2. Applied Informatics
   Global Health Segment
   Moderator: Alexis Carter, MD
   GRAND BALLROOM 1

3. Selected Platform Lectures
   Moderator: Stephen Hewitt, MD, PhD
   KINGS GARDEN 1

9:00–9:35 a.m. A Survey of Important Optical Interrogation Techniques for Histopathology
   Jeffrey Fine, MD

9:00–9:35 a.m. Moving to a Single Source Product for the CAP Cancer Protocols and CAP eCC
   Veronica Klepis, MD, PhD

9:00–9:35 a.m. Intelligently Auto-Filling Peripheral Blood Smear and Bone Marrow Templates
   Rufei Lu, MD

9:35–9:45 a.m. TEN MINUTE BREAK TO SWITCH LECTURES

9:45–10:20 a.m. Using Machine Learning Techniques to Extract Clinically Actionable Data from Laboratory Results: An Update on the Harvard Experience
   Jason Baron, MD

9:45–10:20 a.m. Update on 1D and 2D Barcoding in the Clinical Laboratory
   Alexis Carter, MD

9:45–10:20 a.m. Implementing the DICOM Standard for Digital Pathology
   Markus Herrmann, MD, PhD

10:20–11:20 a.m. BREAK, BROWSE EXHIBITS, AND POSTER SESSIONS

11:20–Noon Turning Research Repository Images into Gold: Winning Strategies for Funding WSI Research Infrastructure and Programs
   Liron Pantanowitz, MD

11:20–Noon Cancer Reporting with the CAP Cancer Protocols/eCC in your LIS: Challenges and Solutions
   Jason R Pettus, MD and Keren Hulkower, PhD

11:20–Noon Private Blockchain Distribution Network for Blood-Derived Biologic Products
   Thomas Durant, MD

Noon–1:00 p.m. LUNCH BREAK
### WEDNESDAY, MAY 23

#### WEDNESDAY AFTERNOON

**PLENARY PRESENTATIONS**

**Implementation Practica**  
**Moderator:** J. Mark Tuthill, MD  
**GRAND BALLROOM 1**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30–2:10 p.m.</td>
<td>Application of NSI to Enable the Pathologist: Expanding the Diagnosis</td>
<td>Stephen Hewitt, MD, PhD</td>
</tr>
<tr>
<td>2:10–2:50 p.m.</td>
<td>Deployment the 2018 CAP/AJCC ECC’s and Externalizing Resultant Data to 3rd Party Systems</td>
<td>J. Mark Tuthill, MD</td>
</tr>
<tr>
<td>2:50–3:30 p.m.</td>
<td>Town Hall</td>
<td>Bob McGonnagle</td>
</tr>
<tr>
<td>3:30–4:30 p.m.</td>
<td>Break, Browse Exhibits + Poster Sessions (Page 19)</td>
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</tbody>
</table>
| 4:30–5:15 p.m.| Presidential Address  
Membership Solicitation, Update and Discussion about Journal of Pathology Informatics and Clinical Informatics Fellowship Training | Dave McClintock, MD  
Liron Pantananowitz, MD  
and Anil Parwani, MD, PhD, MBA |
| 5:15–6:00 p.m.| DICOM Digital Pathology Connectathon Discussion Panel  
**Panelists:**  
Mikael Wintell, Chief Standardization Officer; VGR and Co-Chair WG-26; DICOM  
Eric Wirch, CTO; Coriasta  
Kiran Saligrama, Software Manager, Architect; Leica Biosystems  
Dr. Uwe Harchner, Staff Scientist; Roche Tissue Diagnostics  
Dr. David Clunie, Proprietor; PixelMed Publishing | Moderator:  
Dan Hosseinzadeh, MASC, PEng  
CEO, Pathcore  
Co-Chair WG-26, DICOM |

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**CONFERENCE ADOJURNMENT FOR WEDNESDAY**

**DINNER ON YOUR OWN**

### THURSDAY, MAY 24

#### THURSDAY MORNING

**PLENARY PRESENTATIONS**

**Optimizing Best Practices: AP, CP, and Molecular**  
**Moderator:** Ulysses Balis, MD  
**GRAND BALLROOM 1**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
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</thead>
<tbody>
<tr>
<td>9:00–9:40 a.m.</td>
<td>Next-Generation CAP eCC: Improved Functionality and Interoperability in Pathology Cancer Reporting with SDC-XML</td>
<td>Richard Moldwin, MD, PhD</td>
</tr>
<tr>
<td>9:40–10:20 a.m.</td>
<td>Realizing Effective Digital-enabled AP Workflow: The Henry Ford Experience</td>
<td>J. Mark Tuthill, MD</td>
</tr>
<tr>
<td>10:20–11:00 a.m.</td>
<td>Update: Evolving Best Practice Guidelines for Clinical NGS BioInformatics Pipelines</td>
<td>Alexis Carter, MD</td>
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<tr>
<td>11:00–11:05 a.m.</td>
<td>Stand Up Break</td>
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<tr>
<td>11:05–11:45 a.m.</td>
<td>Meeting Summation, Informatics Trends and Closing Thoughts</td>
<td>Bruce Friedman, MD, J. Mark Tuthill, MD, and Ulysses Balis, MD</td>
</tr>
<tr>
<td>11:45–12:15 a.m.</td>
<td>Wrap-Up Discussion and Summary; Faculty Panel</td>
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<tr>
<td>TIME</td>
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<tr>
<td>8:00–8:15 a.m.</td>
<td>Richard Torres</td>
<td>Clearing Histology With Multiphoton Microscopy (Chimp): Primary Diagnosis of Prostate Biopsies in Un-Embedded Specimens</td>
</tr>
<tr>
<td>8:15–8:30 a.m.</td>
<td>Kazuhiro Tabata</td>
<td>Evaluation And Development of Standard Operation Protocol (SOP) of Micro-Computed Tomography (MICRO-CT) For Pathology Practice</td>
</tr>
<tr>
<td>8:30–8:45 a.m.</td>
<td>Hamad Tizhoosh</td>
<td>Faster, Better, More Reliable Than Deep Features: A Projection-Based, Pathologist-Centric Approach to Identification of Histopathology Images</td>
</tr>
<tr>
<td>8:45–9:00 a.m.</td>
<td>Mark Zarella</td>
<td>Edi-Oct And Dynamic Focus For The Detection of Tumor-Like Features In Prostate Tissue Phantoms</td>
</tr>
<tr>
<td>7:45–8:00 a.m.</td>
<td>Ahmad Mushtaq</td>
<td>Clinical and Histopathological Parameters of the Patients with Breast Cancer from North West Pakistani Population</td>
</tr>
<tr>
<td>8:00–8:15 a.m.</td>
<td>Sonja Althammer</td>
<td>CD8(+) AND PD-L1(+) Cell Densities in Biopsies May Predict Response to Durvalumab in NSCLC Patients</td>
</tr>
<tr>
<td>8:15–8:30 a.m.</td>
<td>Stefan Bentink</td>
<td>Biological Insights into Spatial Distribution Patterns of CD8+ Cells—Distinct Cancer Phenotypes Defined by Image Analysis</td>
</tr>
<tr>
<td>8:30–8:45 a.m.</td>
<td>Nicholas Giraldo</td>
<td>Multidimensional, Quantitative Assessment Of PD-1/ PD-L1 Expression In Patients with Merkel Cell Carcinoma and Association with Response to Pembrolizumab</td>
</tr>
<tr>
<td>8:45–9:00 a.m.</td>
<td>Auranuch Lorsakul</td>
<td>Automated H-Score Analysis of Cea-Expressing Tumor Cells in Wholeslide Immunohistochemistry Brightfield Imaging</td>
</tr>
<tr>
<td>7:45–8:00 a.m.</td>
<td>Lev Lipkin</td>
<td>Machine Learning in the Clinic: Dynamic Evolution of A Predictive Model for Somatic Variant Reporting</td>
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<tr>
<td>8:00–8:15 a.m.</td>
<td>Rohan Joshi</td>
<td>Prediction of Tumor Mutation Burden To Guide Immunotherapy In Lung Adenocarcinoma Using a 130 Gene Panel</td>
</tr>
<tr>
<td>8:15–8:30 a.m.</td>
<td>Priya Velu</td>
<td>Computerized Histomorphometric Features Relating To Nuclear Shape And Architecture Correlate With EGFR and Kras Mutations In Early-Stage Non-Small Cell Lung Cancer</td>
</tr>
<tr>
<td>8:30–8:45 a.m.</td>
<td>Drew Williamson</td>
<td>A Novel Network and Gene Expression Pipeline Identifies Important Signaling Subnetworks in EML4-ALK Translocated Lung Cancer</td>
</tr>
<tr>
<td>8:45–9:00 a.m.</td>
<td>Laraib Safeer</td>
<td>Meta-Analysis Emphasizes Role of IGF-1 Signaling in the Pathogenesis of Psoriatic Arthritis</td>
</tr>
<tr>
<td>7:45–8:00 a.m.</td>
<td>Naohiro Uraoka</td>
<td>Toward the Automated Scoring of Fluorescence in Situ Hybridization Using a Confocal Whole Slide Image Scanner</td>
</tr>
<tr>
<td>8:00–8:15 a.m.</td>
<td>Rufei Lu</td>
<td>Adult And Pediatric Autopsy Web-Based Templating App</td>
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<tr>
<td>8:15–8:30 a.m.</td>
<td>Robert Stapp</td>
<td>Challenges of Implementing Electronic Orders for Anatomic Pathology</td>
</tr>
<tr>
<td>8:30–8:45 a.m.</td>
<td>Peter Gershkovich</td>
<td>Application of Modern Full-Text Search Technology and Information Visualization for Improving Decision Support in Pathology</td>
</tr>
<tr>
<td>8:45–9:00 a.m.</td>
<td>Nicholas Jones</td>
<td>Virtual Slide Labels as a Solution for Image Identification Challenges in Digital Pathology</td>
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<tr>
<td>7:45–8:00 a.m.</td>
<td>Fangyao Hu</td>
<td>Deep Learning For Breast Tumor Segmentation at Pixel-Level in Whole Slide Images Without Manual Annotation</td>
</tr>
<tr>
<td>8:00–8:15 a.m.</td>
<td>Nicolas Brieu</td>
<td>Deep Learning-based PD-L1 Tumor Cell (TC) Scoring of Resected NSCLC</td>
</tr>
<tr>
<td>8:15–8:30 a.m.</td>
<td>Brian Kolowitz</td>
<td>Community Crowdsourcing Tool to Expedite Annotations for Deep Learning in Pathology</td>
</tr>
<tr>
<td>8:30–8:45 a.m.</td>
<td>Wenchao Han</td>
<td>Automatic Cancer and High-Grade Cancer Detection and Localization on Whole-Mount Digital Histopathology Images of Mid-Gland Radical Prostatectomy Specimens</td>
</tr>
<tr>
<td>8:45–9:00 a.m.</td>
<td>Keluo Yao</td>
<td>A Robust Machine Learning Algorithm for Better Detection of Thyroid Follicular Neoplasm</td>
</tr>
<tr>
<td>7:45–8:00 a.m.</td>
<td>Jennifer Picarsic</td>
<td>Real-Time Sharing of Digital Intraoperative Telepathology Consultations with Surgeons</td>
</tr>
<tr>
<td>8:00–8:15 a.m.</td>
<td>Andrew Quinn</td>
<td>Real-Time Streaming Telepathology Between Networks: A New Approach with Scalers, Encoders and Dedicated Network Pathways</td>
</tr>
<tr>
<td>8:15–8:30 a.m.</td>
<td>Brandon Gallas</td>
<td>A Reader Study on a 14-head Microscope</td>
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<tr>
<td>8:30–8:45 a.m.</td>
<td>Gabe Siegel</td>
<td>Automated Imaging and Scoring of Histological Specimens During Routine Pathology Workflow</td>
</tr>
<tr>
<td>8:45–9:00 a.m.</td>
<td>Gabe Siegel</td>
<td>Use of Telepathology for Pathology Collaboration and Peer Review in Multinational Studies</td>
</tr>
<tr>
<td>7:45–8:00 a.m.</td>
<td>Keluo Yao</td>
<td>A Web-Application Based “Cockpit” for Protein Electrophoresis</td>
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<tr>
<td>8:00–8:15 a.m.</td>
<td>Daniel Herman</td>
<td>EHR-based Assessment of the Current Practice of Screening for Primary Aldosteronism</td>
</tr>
<tr>
<td>8:15–8:30 a.m.</td>
<td>Rajan Dewar</td>
<td>Immediate Bedside Estimation of Trabecular Bone Fraction in Freshly Obtained Bone Marrow Core Biopsies</td>
</tr>
<tr>
<td>8:30–8:45 a.m.</td>
<td>Alex Greninger</td>
<td>Strong Correlation Of Sample Collection Date and Patient Admission Date in Microbiological Testing Complicates Sharing of Phylogeny Metadata Sharing</td>
</tr>
<tr>
<td>8:45–9:00 a.m.</td>
<td>Andrew Quinn</td>
<td>Approaching Pre-Analytical Automation in Next Generation Sequencing</td>
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<tr>
<td>7:45–8:00 a.m.</td>
<td>Douglas Hartman</td>
<td>Whole-Tissue Phenotyping Via Three-Dimensional Reconstruction of Human Gastrointestinal Tissues</td>
</tr>
<tr>
<td>8:00–8:15 a.m.</td>
<td>Jihad Aljabban</td>
<td>Meta-analysis Reveals Multiple Drivers of Crohn’s Disease Pathogenesis</td>
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<tr>
<td>8:15–8:30 a.m.</td>
<td>Thomas Durant</td>
<td>Bridging the Collaboration Gap: Real-Time Identification of Clinical Specimens for Biomedical Research</td>
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<tr>
<td>8:30–8:45 a.m.</td>
<td>Patrick Mathias</td>
<td>Development of a Laboratory-Focused Data Warehouse Using Open Source Software</td>
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<tr>
<td>8:45–9:00 a.m.</td>
<td>Grzegorz Gurda</td>
<td>A Searchable Electronic Archive of Biobank Specimens from Paper Pathology Reports: 1 Year Pilot, Overmapping Functional Ontologies (SNOMED CT, ICD-O-3, MESH)</td>
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## 2018 POSTER SCHEDULE
### TUESDAY, MAY 22

ON VIEW IN THE GRAND BALLROOM (see page 42) from 10:20-11:20 a.m. and 3:35-4:00 p.m.

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<thead>
<tr>
<th>Author</th>
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<tr>
<td>Burak Bahar</td>
<td>Development and Implementation of a Comprehensive Transfusion Management and Utilization Platform</td>
</tr>
<tr>
<td>Dustin Bunch</td>
<td>Predictive Analytics to Identify Patients that May Benefit from Pharmacogenomic Screening</td>
</tr>
<tr>
<td>Thomas Chong</td>
<td>Laboratory Information System Storage Requirements for Whole Slide Imaging in the Histology Laboratory</td>
</tr>
<tr>
<td>Rajarsi Gupta</td>
<td>Development of A Deep Watershed Transform Instance Segmentation Method for Nuclei Segmentation in Histopathologic Images of Breast Cancer</td>
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<tr>
<td>Christine Gutierrez</td>
<td>Support Models for Laboratory Information Systems: A Survey of Pathology and Non-Pathology Informaticist Leaders</td>
</tr>
<tr>
<td>Douglas Hartman</td>
<td>Time and Motion Study for Single Sign-On Solution (Caradigm) in two Subspecialty Practices</td>
</tr>
<tr>
<td>Jason Kang</td>
<td>Successful Deployment of Decision Support and Data-Mining in Patient Blood Management</td>
</tr>
<tr>
<td>Mikhail Kovalenko</td>
<td>Comparative Analysis of Changes in Pathologists’ Diagnostic Approaches Over Time</td>
</tr>
<tr>
<td>Mark Lloyd</td>
<td>Process Excellence in A Large Volume WSI Scanning Facility</td>
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<td>Features Used in Computerized Image Analysis Systems Could Benefit Pathologists: Mitosis Detection</td>
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<td>Automated Identification of Mitoses Using a Hybrid Approach: Combining Deep Learning with Classical Domain-Based Detection</td>
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<tr>
<td>Nitin Marwaha</td>
<td>Application of Image J in Evaluating Ki-67 Proliferation Index in Gastrointestinal Neuroendocrine Tumors</td>
</tr>
<tr>
<td>Yao Nie</td>
<td>Quantified Analysis of Hematoxylin Stain Variations</td>
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<tr>
<td>Iman Tavassoly</td>
<td>Fuzzification of Cancer Staging in Pathology for a Precision Medicine System</td>
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<td>Genomic Landscape of Autophagy System Based on Histopathology of Lung Cancers: Lessons from the Cancer Genome Atlas</td>
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<tr>
<td>Swikrity Upadhyay</td>
<td>A New Era for Intraoperative Neuro-Telepathology: Impact of Migrating to LVI from Zeiss</td>
</tr>
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<tr>
<td>Jacob Abel</td>
<td>Reference Interval (RI) Validation for Urine Protein Concentration (UPC) Following a Vendor Notice.</td>
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<td>Effect of Resampling on Validation of the Manufacturer’s Suggested Reference Interval (MSRI) for Urine Protein Concentration (UPC)</td>
</tr>
<tr>
<td>Joleen Borg</td>
<td>External Laboratory Results: Provider Needs and Health Information Exchange Capabilities</td>
</tr>
<tr>
<td>Benjamin Freiberg</td>
<td>Biomarker Colocalization Analysis of a Virtual 12-plex Using Discovery Chromogenic Dyes and Tissuealign™Co-registration Software</td>
</tr>
<tr>
<td>Joseph Frye</td>
<td>Virtual Case Seminars Using Whole Slide Digital Scans and Screencast Technology to Enhance Pathology Education</td>
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<td>Next Generation Sequencing Identifies Mutational Differences between Primary and Metastatic Colorectal Carcinoma: Therapeutic Implications for Specimen Selection</td>
</tr>
<tr>
<td>Keren Hulkower</td>
<td>Incorporation of SNOMED CT and ICD-O-3 Codes for Topographical and Morphological Maps in CAP Electronic Cancer Checklists</td>
</tr>
<tr>
<td>Richard Lindquist</td>
<td>Real Time Student Assessment In Pathology Teaching Laboratories</td>
</tr>
<tr>
<td>Andres Mosquera-Zamudio</td>
<td>Update from Latin America (LATAM) in the Era of Digital Pathology</td>
</tr>
<tr>
<td>David Nohle</td>
<td>Circular Visualization of Digitized Pathology Data and Derived Tissue Morphometrics Offers a New Approach to Presentation of Extensive Data Sets</td>
</tr>
<tr>
<td>Andrew Norgan</td>
<td>Development of pltvxm, a Clinical Decision Support Tool for Computer-Aided Selection of Platelet Units for Platelet Transfusion-Refractory Patients</td>
</tr>
<tr>
<td>Liron Pantanowitz</td>
<td>Effect of Dedicated Cytology Protocol Setting for Scanning ThinPrep Slides</td>
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<tr>
<td>Dinesh Pradhan</td>
<td>Evaluation of Quantitative Phase Imaging (QPI) Compared to Urovysion for Urine Cytology</td>
</tr>
<tr>
<td>Andrey Prilutskiy</td>
<td>Using Image-Assisted Manual Counting as a Quality Assurance Tool in Pancreatic Neuroendocrine Tumors</td>
</tr>
<tr>
<td>Srikanth Ragothaman</td>
<td>Low Cost Imaging System for Pap Smear Based Cervical Cancer Screening</td>
</tr>
<tr>
<td>Yonah Ziemba</td>
<td>Predictive Values of Common Laboratory Tests for Data Driven Patient Management</td>
</tr>
</tbody>
</table>
FACULTY PROFILES
Ulysses J. Balis, MD, FCAP, FASCP, FAIMBE

Professor of Pathology; Director, Division of Pathology Informatics; Director, Computational Pathology Laboratory Section and Director, Pathology Informatics Fellowship Program; Department of Pathology, University of Michigan Medical School

ANN ARBOR, MI | ulysses@med.umich.edu

Dr. Balis (PI2018 Course Director) is professor of Pathology at the University of Michigan and currently serves as the director of the Division of Pathology Informatics, in the Department of Pathology. He maintains a primary research interest in computational data sciences, with a longstanding interest in the intersection of engineering, computational approaches towards the practice of medicine. His research focuses on the application of machine learning techniques for towards fully automated classification and annotation computational pipelines in the processing of whole slide imaging data sets.

The division he directs is noteworthy for being one of the few such academic groups operating in support of pathology, while being housed wholly within the pathology department itself. His division is similarly noteworthy for its having three full-time, clinical informatics board-certified pathologists within its faculty. He and his division have active, NIH-supported research initiatives in several areas of pathology and medical informatics, including: most recently, his division being chose to serve as the Digital Visualization Core for the recently awarded NIDDK Kidney Precision Medicine Project. Activities of this research core include: machine learning and use of encoded data, image-based analytics, machine vision tools for histopathology, image-based search algorithms and federated enterprise data architectures, with all of these areas serving as a rich educational substrate for a growing and thriving pathology informatics fellowship— one of only seven such programs in the U.S. Dr. Balis has had a longstanding interest in pathology informatics education, and currently serves as a founding member on the Clinical Informatics Subspecialty Boards Exam Committee.

J. Mark Tuthill, MD

Division Head, Pathology Informatics, Henry Ford Health System

DETROIT, MI | mtuthill1@hfhs.org

J. Mark Tuthill, MD, completed his pathology residency and informatics fellowship training at the University of Vermont College of Medicine-Fletcher Allen Health Care, where he worked to create and direct that department’s division of pathology informatics. Currently, Dr. Tuthill is head of the division of pathology informatics at Henry Ford Health System in Detroit, Michigan. Some areas of practice interest include digital imaging and image databases, development of Internet applications for laboratory information services, anatomic pathology and clinical laboratory information systems, laboratory outreach technology solutions, electronic health records, and informatics training and education.

Active in organized medicine throughout his training and professional career, at present, he is an advisor to the ASCP Annual Meeting Steering Committee, Wayne County District Director for the MSMS, and Conference Director for the annual Pathology Informatics Summit. As a charter member of the Association for Pathology Informatics, Dr. Tuthill has worked enthusiastically for the API from its inception. He has served as president, chairman of the membership committee, as an education committee member, and participated in the organization’s original planning group.
Bruce A. Friedman, MD
Emeritus Professor of Pathology, University of Michigan Medical School; President, Pathology Education Consortium
ANN ARBOR, MI | friedman@labinfotech.com

Bruce Friedman is a graduate of the University of Michigan Medical School. He completed a pathology residency in the Department of Pathology, University of Michigan Medical School, in 1971. In 1973, he joined the pathology faculty of the University of Michigan. He served on the faculty of the University of Michigan for 33 years, retiring in 2006.

He served as the Director of Pathology Informatics in the Department of Pathology and also as Director of Clinical Support Systems for the University of Michigan Health System. He was a founder of the first pathology informatics conference in the country called AIMCL that was offered for 21 years in Ann Arbor beginning in 1983. In 2004, this conference was renamed Lab Infotech Summit and moved to Las Vegas for six years. This conference was merged with APIII in 2010 to form the Pathology Informatics Summit.

He is the founder of a blog named Lab Soft News that focuses on clinical lab software and the clinical lab industry. He was a founding member, and one of the two founding presidents, of the Association for Pathology Informatics (API). He served as the co-director of the Pathology Informatics Summit planning committee from 2010 to 2014. He continues to serve on the planning committee.

Anil Parwani, MD, PhD, MBA
Vice-Chair of Anatomic Pathology and Director of Pathology Informatics, Department of Pathology, Wexner Medical Center, the Ohio State University
COLUMBUS, OH | anil.parwani@osumc.edu

Dr. Anil Parwani is a Professor of Pathology at The Ohio State University. He serves as the Vice Chair and Director of Anatomical Pathology. Dr. Parwani is also the Director of Pathology Informatics and Director of the Digital Pathology Shared Resource at The James Cancer Hospital. His research is focused on diagnostic and prognostic markers in bladder and prostate cancer, and molecular classification of renal cell carcinoma. Dr. Parwani has expertise in the area of Anatomical Pathology Informatics including designing quality assurance tools, bio banking informatics, clinical and research data integration, applications of whole slide imaging, digital imaging, telepathology, image analysis, and lab automation. Dr. Parwani has authored over 250 peer-reviewed articles in major scientific journals and several books and book chapters. Dr. Parwani is the Editor-in-chief of Diagnostic Pathology and one of the Editors of the Journal of Pathology Informatics.
Veronica Klepeis, MD, PhD

Assistant in Pathology, Department of Pathology, Massachusetts General Hospital
BOSTON, MA | vklepeis@mgh.harvard.edu

Veronica Klepeis, MD, PhD is an Assistant in Pathology at Massachusetts General Hospital in Boston where she has been heading up implementation of structured data capture in anatomic pathology. She is the digital pathology lead and clinical director of the AP LIS for the pathology department at MGH, and her main informatics interests are focused in anatomic pathology and include data quality, structured data capture, whole slide imaging and digital image analysis. Veronica is director of the Clinical Informatics Fellowship Program based in the pathology departments at MGH and BWH. She is also a member of the College of American Pathologists (CAP) Pathology and Electronic Reporting (PERT) Committee. Dr. Klepeis is board certified in Anatomic and Clinical Pathology, Hematopathology and Clinical Informatics.

FACULTY

Raymond D. Aller, MD, LFHIMSS, LFCAP, FASCP, FACMI

Clinical Professor Emeritus, University of Southern California
Vista, CA | raller@usc.edu

Dr. Aller is a nationally known authority on the use of information technology to enhance and ensure patient safety and operational efficiency. A graduate of Harvard Medical School, his MD thesis was the design of the first online surgical pathology information system in the country, which became the prototype of the anatomic pathology automation software now used in most U.S. hospitals. In several institutions, he has taught the use of information technologies to enhance the quality and safety of patient care processes. He has practiced pathology in California, Utah, and the Southeast. He led the team that built the automated disease surveillance system for Los Angeles County Public Health. Dr. Aller has taught informatics to USC pathologists since 1982. He helped create the first edition of SNOMED, and early versions of LOINC.

For over 3 decades, he has edited clinical informatics content for CAP Today, the most widely read journal in clinical and anatomic laboratory medicine. In 1991, he launched the first effort to board-certify physicians in clinical informatics, which reached fruition with the first certification exam in 2013. Recently, he has focused his attention in two areas: 1. a major unsolved problem in medicine: the definitive biological identification of the patient and the imperative to move from text matching to biometric-anchored identifiers, and 2. how to facilitate implementation of comprehensive laboratory information systems in low income countries. He has been elected Life Fellow of HIMSS and the College of American Pathologists, and Fellow of the American College of Medical Informatics and the American Society for Clinical Pathology. He was awarded the Lifetime Achievement Award/Honorary Fellow of the Association of Pathology Informatics (and served as President of API). He has been actively involved in CAP, ASCP, and HIMSS for over three decades, and has served on several national committees with each organization.
Thomas P. Baker, MD
Senior Pathologist, The Joint Pathology Center; Defense Health Agency National Capital Region Medical Directorate
SILVER SPRING, MD | thomas.p.baker.civ@mail.mil

Dr. Thomas Baker is the Chair of the College of American Pathologists Cancer Committee which is responsible for oversight of the Cancer Protocols. He also serves on the Advisory Board of the American Joint Committee on Cancer (AJCC), the Executive Committee of the Commission on Cancer and on the Steering Committee for the International Collaboration on Cancer Reporting.

Dr. Baker is a graduate of the University of Wisconsin School of Medicine and Public Health. He served in the United States Army for 28 years; retiring as a Colonel in 2015. During his time in the Army, he served in numerous diverse and challenging assignments all over the United States and the world. He has spent the last 12 years in the National Capital Region initially as the Chief of Pathology at Walter Reed Army Medical Center and National Naval Medical Center Bethesda. His final assignment was six years as the Director and Chief Medical Officer of the Joint Pathology Center in Silver Spring, Maryland; the successor organization to the AFIP. Upon retirement from the Army, Dr. Baker took a senior staff position at the Joint Pathology Center as a GYN and Breast Pathologist and enjoys doing clinical work, resident education and research.

Jason Baron, MD
Medical Director, Core Laboratory, Investigator, Pathology Informatics, Department of Pathology, Massachusetts General Hospital
BOSTON, MA | jmbaron@partners.org

Jason Baron, MD, is a medical director in the Core Laboratory and an investigator in Pathology Informatics within the Department of Pathology at the Massachusetts General Hospital. Dr. Baron’s research interests are focused on clinical decision support for laboratory testing and the application of statistical methods, and “big-data” analytics to enhance laboratory diagnosis. He is particularly interested in the use of artificial intelligence to derive more precise and patient-specific, diagnostic, prognostic and prescriptive information from sets of routine “commodity” laboratory data. His clinical responsibilities include overseeing reference laboratory testing as well as advancing quality improvement and utilization management initiatives throughout the Core Lab.

Stephen A. Boppart, MD, PhD
Abel Bliss Professor of Engineering, Director, Center for Optical Molecular Imaging, Head, Biophotonics Imaging Laboratory, Departments of Electrical and Computer Engineering, Bioengineering, and Medicine, Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign
URBANA, IL | boppart@illinois.edu

Stephen Boppart is an Abel Bliss Professor of Engineering with appointments in the Departments of Electrical and Computer Engineering, Bioengineering, and Medicine. He is also a full-time faculty member at the Beckman Institute for Advanced Science and Technology. His Biophotonics Imaging Laboratory is focused on developing novel optical biomedical diagnostic and imaging technologies and
translating them into clinical applications. Prof. Boppart received his PhD in Medical and Electrical Engineering from MIT, his MD from Harvard Medical School, and his residency training at the University of Illinois in Internal Medicine. Since joining the faculty at Illinois in 2000, he has published over 300 invited and contributed publications and over 40 patents related to optical biomedical imaging technology. He has mentored over 100 undergraduate, graduate, and post-graduate interdisciplinary researchers. He was recognized by MIT’s Technology Review Magazine as one of the Top 100 Young Innovators in the World for his development of medical technology, and the Paul F. Forman Engineering Excellence Award from the Optical Society of America for dedication and advancement in undergraduate research education. More recently, he received the international Hans Sigrist Prize in the field of Diagnostic Laser Medicine, and the IEEE Technical Achievement Award. Prof. Boppart has also co-founded three start-up companies to commercialize and disseminate his optical technologies for biomedical imaging. He is a Fellow of AAAS, IEEE, OSA, SPIE, AIMBE, and BMES.

He served as Director of a campus-wide Imaging at Illinois program for seven years to integrate imaging science, technology, and applications across multiple modalities and fields, and is currently Director of the Center for Optical Molecular Imaging supported by an academic-clinical-industry partnership with GlaxoSmithKline. Prof. Boppart has been a strong advocate for the integration of engineering and medicine to advance human health and our healthcare systems, and is playing an active role in the visioning, development, and launch of a new engineering-based College of Medicine at the University of Illinois at Urbana-Champaign.

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Victor Brodsky, MD is a Medical Director of Information Systems at Cedars-Sinai Medical Center in Los Angeles, California. Prior to joining Cedars-Sinai, Dr. Brodsky has served as the Medical Director of Informatics and Assistant Professor in the department of Pathology and Laboratory Medicine, as well as the Assistant Professor of Public Health at Weill Cornell Medical College in New York City. Prior to that position, Dr. Brodsky was the first Pathology Informatics Fellow in Massachusetts General Hospital in Boston after completing his Anatomic Pathology residency at Mt. Sinai Medical Center in New York City. Dr. Brodsky has received his undergraduate and medical degrees by completing the combined seven-year medical program at Boston University and Boston University School of Medicine in 2005.

Dr. Brodsky is currently the co-chair of the Education Committee of the Association for Pathology Informatics (API) and the co-Chair of Health Level 7 (HL7) Orders and Observations Working Group, focusing on standardizing pathology ordering and reporting in collaboration with Integrating the Healthcare Enterprise (IHE). Additionally, Dr. Brodsky has served as a liaison to HL7 from the College of American Pathologists (CAP), representing the Informatics committee of the college for over 7 years, and has been involved in the creation of the upcoming AUTO14 laboratory barcoding standard by the Clinical and Laboratory Standards Institute (CLSI). Dr. Brodsky has also been a part of Work Group 26 of Digital Imaging and Communications in Medicine (DICOM) since its inception in 2005, working to create digital imaging standards for pathology. Since 2012, Dr. Brodsky has served on Office of the National Coordinator for Health Information Technology (ONC) Laboratory Reporting Workgroup preparing relevant guidelines for the US government’s Meaningful Use program and recently participated in FDA’s LOINC panel at the National Library of Medicine (NLM). Dr. Brodsky is among the authors of the Pathology Informatics Essentials for Residents (PIER) curriculum and is the architect of the open source “Order” labora-
tory management web platform (https://github.com/victorbrodsky/order-lab). His past projects include implementing whole slide scanning and other pathology imaging, specimen barcoding and tracking, and microscopic image analysis software, as well as interfacing clinical systems, web development, and software engineering.

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Keith Callenberg is Director of the Healthcare AI Group at UPMC Enterprises. He started at University of Pittsburgh Medical Center in 2015, developing an analytical platform for molecular pathology. He joined UPMC Enterprises in 2017 to lead design and delivery of machine learning models across many healthcare fields including digital pathology. Prior to UPMC, he led statistical design and machine learning for Interpace Diagnostics. He holds a PhD from the joint Carnegie Mellon University-University of Pittsburgh program in Computational Biology.

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Dr. Sandra Camelo-Piragua is a Clinical Associate Professor of Pathology at the University of Michigan. She is a practicing neuropathologist in a busy tertiary center with a robust in-house and consultation service in surgical and autopsy neuropathology. Dr. Camelo-Piragua is interested in the implementation of telepathology, WSI and new in-vivo imaging technologies. For the latter, Dr. Camelo-Piragua has worked on Raman scattering microscopy intraoperatively to help guide maximal tumor resection and provide pathologists with alternative imaging technologies for tissue diagnosis, quality assurance and research purposes. This effort has led to several major publications, previous and ongoing grant awards.

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Alexis Carter, MD, is the Physician Informaticist for the Laboratory at Children’s Healthcare of Atlanta, the largest children’s health system in the United States. She is board certified in clinical informatics, molecular genetic pathology, anatomic pathology and clinical pathology. Dr. Carter is the current chair of the Informatics Subdivision, Board Member and Executive Committee Member of the Association of Molecular Pathology. She is teaching faculty for the American Medical Informatics Association Clinical Informatics Board Review Course. In the College of American Pathologists, Dr. Carter is a member of the Informatics Committee and was a member of the working group that developed the validation guideline for Whole Slide Imaging. She currently works as the Secretary for the Clinical and Laboratory Standards Institute’s working group for a new standard on two-dimensional barcoding for both clinical and anatomic pathology laboratory
specimens. Dr. Carter is a member of the Office of the National Coordinator’s TIGER team for Laboratory Regulations and Laboratory Reporting under Meaningful Use. She is a former chair of the International Pathology and Laboratory Medicine Special Interest Group for SNOMED-CT International (formerly the International Health Terminology Standards Development Organisation). She is a former president of the Association of Pathology Informatics, an editorial board member of the Journal of Pathology Informatics and reviewer for multiple scientific journals in molecular diagnostics, genetics and informatics.

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Dr. Chennubhotla is an Associate Professor in the Department of Computational and Systems Biology at the University of Pittsburgh. His group investigates the molecular and cellular origins of human epithelial malignancies (e.g., breast cancer, Barrett’s esophagus) through computational models. A major thrust of his research is in computational pathology and spatial tumor biology.

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Dr. Cornish is an Associate Professor of Pathology at The University of Colorado School of Medicine where he practices gastrointestinal pathology and serves as the Medical Director of Informatics for the department and Medical Director of the LIS for the UC Health system. In addition to clinical informatics, his interests include histologic image analysis, the application of digital pathology to education and clinical practice, and the development of mobile applications for pathology education.

Dr. Cornish has co-developed a number of software packages for biomarker quantitation including TMAJ/FrIDA, PIP, and HPASubC. Dr. Cornish is the co-author of several educational apps for the iPad: The Johns Hopkins Atlas of Pancreatic Pathology, The Johns Hopkins Atlas of Pancreatic Cytopathology, The Johns Hopkins Flashcards App and the iCarebook for Pancreatic Cancer, and he is the series editor for the ongoing Johns Hopkins Atlases of Pathology series of apps.

Dr. Cornish serves as co-chair of the Association of Pathology Informatics’ Education and Training Committee. He is the Informatics Section Editor for AJCP, serves on the College of American Pathologists (CAP) Digital Pathology Committee and is a coauthor of the CAP Pathology Resource Guide: Digital Pathology. His is a member of Cerner’s CoPathPlus Pathology Advisory Committee, Epic’s Pathology Steering Board and Leica’s Pathology Imaging Advisory Board.
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Dr. de Baca is a board certified AP/CP/Hematopathologist with longstanding interest in informatics. She has served on the SNOMED International Editorial Board, is a founding co-chair of the CAP Pathology Electronic Reporting Taskforce (PERT) (which creates electronic representations of the CAP Cancer Checklists), a member of the CAP Informatics Committee and is currently the president-elect of API.

Mary E. Edgerton, MD, PhD

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Mary E. Edgerton, MD, PhD received her BS with Highest Honors in Physics from the University of Texas at Austin. She was awarded a Marshall Scholarship to the United Kingdom, and subsequently received her PhD in Biophysics from the University of East Anglia. Following nearly a decade of research in the oil industry, Dr. Edgerton attended the Medical College of Pennsylvania and after graduating completed a residency in anatomic and clinical pathology and a fellowship in surgical pathology fellowship at the University of Pennsylvania. In addition to research in data mining, bioinformatics, and mathematical model of tumors, she has worked on the development of integrated information platforms for tissue acquisition, clinical annotation, and molecular profiling, and is internationally recognized in the field of tissue informatics. At MD Anderson she has worked on the development of an enterprise system for tissue banking across the institution and is currently working on a catalogue for searching biospecimen availability across the MD Anderson sister institution network. She is a member of the College of American Pathology (CAP) “Pathology Electronic Reporting Committee” (PERT) and is the PERT representative to the California Cancer Registry/California Society of pathology (CCR/CSP) project to automate acquisition of cancer case information by the registry. In addition to her role with the California Cancer Registry Data Consortium Project, she is leading a committee within the Texas Society of Pathologists to assess the potential for automating cancer case reporting in Texas.

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Dr. Soufiane El Hallani is an Anatomical/Molecular Pathologist and Clinical Fellow at Stanford University. He completed a post-doctoral training at British Columbia Cancer Research Center (Vancouver, BC, Canada) working on the clinical validation of innovative technologies related to digital pathology and tissue imaging. Dr. El Hallani is a strong advocate for the integration of modern methodologies (clinical genomics and digital pathology) into the practice of anatomical pathology to achieve the vision of Precision Health and improve cancer detection and care.
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Michael Feldman’s professional interests revolve around the development, integration and adoption of information technologies in the discipline of Pathology. One of his main areas of interest within this broad discipline has been in the field of digital imaging. Feldman has been exploring pathology imaging on several fronts including: interactions between pathology/radiology (High resolution MRI imaging of prostate cancer and breast carcinoma), development and utilization of computer assisted diagnostic algorithms for machine vision in prostate and breast cancer (collaboration with Dr. Anant Madhabushi Rutgers). He has also been exploring: application of multispectral imaging for the analysis of multicolor immunohistochemistry and immunofluorescence and the development of a quantitative system for scoring and analyzing at a cytometric level, and multicolor immunostaining on surgical pathology slides. The efforts have been recognized by the national funding agencies which have awarded his group an SBIR and RO1 from NIH, Synergy award from DOD as well as two industry sponsored projects.

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Dr. Fine is a breast and gynecologic pathologist with research interests in optical coherence tomography (OCT), pathologists’ computer assisted diagnosis (pCAD), image analysis, 3D specimen imaging, whole slide imaging (WSI), telepathology and other related topics. He strongly believes that in the future pathologists will no longer manually drive microscopes; rather they will be chauffeured by computer to important diagnostic decisions.

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Thomas Flotte is a practicing dermatopathologist, the Medical Director of the Pathology Research Core for the Center for Individualized Medicine, and the Program Director of the Clinical Informatics Fellowship at the Mayo Clinic in Rochester, Minnesota. He has been interested in digital pathology for many years and has formed a machine learning group focused on pathology applications.
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Thomas Fuchs heads the Computational Pathology and Medical Machine Learning Lab at Memorial Sloan Kettering Cancer Center and teaches biomedical machine learning as associate professor at Weill-Cornell in New York City. He is director of The Warren Alpert Center for Digital and Computational Pathology. His passion for the tremendous potential of artificial intelligence in medicine resulted in more than 90 publications spanning a range of topics from novel deep learning and Bayesian approaches for quantification to real-world applications in the clinic. Previously, Thomas was a rocket scientist at NASA’s Jet Propulsion Laboratory, where he developed autonomous computer vision systems for space exploration. He completed his Postdoc at the California Institute of Technology after receiving his PhD in machine learning from ETH Zurich.

Metin Gurcan, PhD

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Dr. Metin Gurcan is the inaugural Director of Center for Biomedical Informatics and Professor of Internal Medicine at Wake Forest School of Medicine and the founding director of the Clinical Image Analysis Lab (http://tsi.wakehealth.edu/CIALab/). Dr. Gurcan received his BSc. and PhD degrees in Electrical and Electronics Engineering from Bilkent University, Turkey and his MSc. Degree in Digital Systems Engineering from the University of Manchester Institute of Science and Technology, England. From 1999 to 2001, he was a postdoctoral research fellow and later a research investigator in the Department of Radiology at the University of Michigan, Ann Arbor. Then, he worked as a senior researcher and product director at a high-tech company, specializing in computer-aided detection and diagnosis of cancer from radiological images. Prior to joining the Wake Forest School of Medicine, he was Professor of Biomedical Informatics and Pathology, and Director of the Division of Clinical and Translational Informatics.

Dr. Gurcan is the author of over 150 peer-reviewed publications, book chapters, and has two patents in computer-aided diagnosis in volumetric imagery. Dr. Gurcan is the recipient of the British Foreign and Commonwealth Organization Award, NCI caBIG Embodying the Vision Award, NIH Exceptional, Unconventional Research Enabling Knowledge Acceleration (EUREKA) Award, Children’s Neuroblastoma Cancer Foundation Young Investigator Award, The OSU Cancer Center REAP Award, Pelotonia Idea Award, and is a senior of member of IEEE, SPIE and RSNA. Dr. Gurcan is on the editorial boards of Journal of Pathology Informatics, Signal, Image and Video Processing Journal, Journal of Medical Imaging; and chairs the SPIE Medical Imaging Digital Pathology Conference and Pathology Informatics HIMA workshop.
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Daniel Herman practices clinical pathology at the University of Pennsylvania, where he directs the Endocrinology laboratory. In addition to his clinical chemistry efforts, he is leading projects to make better use of existing laboratory data in the form of live operational dashboards, test utilization reports, and identification of missing patient diagnoses. His research group has been developing EHR-based methods to improve population health screening, focused recently on improving population hypertension management by identifying patients with undiagnosed primary aldosteronism. He is also interested in the intersection of pathology and policy and recently served as junior member on the CAP Council for Government and Professional Affairs. Dr. Herman trained in Clinical Pathology at the University of Washington.

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Keren Hulkower earned a BS in biology from Cook College, Rutgers University and obtained his MS in microbiology and PhD in biochemistry from University of Pittsburgh School of Medicine. After post-doctoral positions at University of Pittsburgh and Hoffmann—La Roche, Dr. Hulkower worked at Abbott Laboratories as a Senior Research Pharmacologist in Immunoscience and Oncology drug discovery areas, and as a Senior Technical Specialist in diagnostic assay development. Dr. Hulkower has served in senior R&D and technical management roles in start-up and early stage biotechnology companies, and as a patent search professional for an intellectual property law firm. He joined the College of American Pathologists in 2011 and, since 2015, has been working to support the development of CAP eCC templates by the Structured Data Team where he currently serves as a Clinical Informaticist.
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Jonathan T.C. Liu received his BSE degree from Princeton University in 1999, and an MS and PhD degree in mechanical engineering from Stanford University in 2000 and 2005, respectively. He was a postdoctoral fellow in the department of electrical engineering (Ginzton Labs) and the Molecular Imaging Program at Stanford (2005–2009), and was later appointed as an instructor within the Stanford University School of Medicine (2009–2010). From 2010 to 2014, Jonathan was an assistant professor of biomedical engineering at SUNY Stony Brook. He is currently the Bryan T. McMinn endowed associate professor of mechanical engineering at the University of Washington in Seattle, with an adjunct appointment in the pathology department at the UW School of Medicine. Jonathan’s laboratory for molecular biophotonics develops optical strategies for improving the diagnosis and treatment of diseases, including the development of miniature in vivo microscopes and tabletop “open-top” light-sheet microscopes for slide-free nondestructive 3D pathology.

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Manjunath is a Distinguished Professor of Electrical and Computer Engineering at the University of California, Santa Barbara. He received his PhD in Electrical Engineering from the University of Southern California and the M.E. in Systems Science and Automation from the Indian Institute of Science. His research interests are in image informatics and in recent years he has focused on application to life and health sciences. He has published over 300 peer-reviewed articles, inventor on 24 patents, and co-edited the book on MPEG-7 ISO standard on multimedia content description.

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David McClintock, MD, is an Associate CMIO of Michigan Medicine (Pathology Informatics), Director of Digital Pathology, and Associate Professor at the University of Michigan. His primary clinical interests comprise operational pathology and clinical laboratory informatics including workflow analysis, laboratory information system optimization, and improved integration of pathology and clinical laboratory data within the EHR and clinical research data warehouses. His research interests include understanding the role and effects of whole slide imaging and digital pathology within the clinical laboratories, the effects of computational pathology and machine learning on diagnostics testing and patient outcomes, and how to enable laboratory data analytics in order to provide both pathologists and clinicians opportunities to better optimize patient care and clinical decision-making. He is also currently serving as President of the Association of Pathology Informatics for 2018.
Richard Moldwin, MD, PhD

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Dr. Moldwin has worked in biomedical informatics for over 30 years. His clinical training was in pediatric hematology/oncology, and his biomedical research focused on T cell immunology, leukemia, and stem cell transplantation. His past bioinformatics projects have involved computation of protein structure, development of software for immunologic assay analysis, creation of databases for clinical management and biospecimen research, and the creation of clinical content management software. Since 2006, he has worked at the College of American Pathologists (CAP) on the development of interoperable data representations for the management of cancer data, and he leads the development and implementation of CAP’s “electronic Cancer Checklists.”

As part of the effort to encourage widespread adoption of the eCC content and interoperability model, he works closely with collaborators from AJCC, ASCO, CDC, HL7/FHIR, IHE, NAACCR, NCI, NLM, ONC, and others, including many EHR vendors. eCC implementations have been very successful in Ontario, and further eCC implementation work is now focused on the state of California, with a strong emphasis on streamlining data collection processes for cancer registries. The eCC team has been working with ONC and others to develop a closely-related interoperability model called “Structured Data Capture.”

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After growing up in northern Wisconsin, Dr. Jordan Olson did his undergraduate and medical schooling at the University of Wisconsin—Madison. He then went to Penn State Hershey Medical center and became fascinated with system-level changes and informatics. The department of Pathology and Laboratory Medicine allowed him to gain the tools to work on system-wide issues. Dr. Olson completed a residency in clinical pathology and a fellowship in transfusion medicine while at Penn State Hershey Medical Center, focusing on informatics-related issues.

After Residency he joined the Geisinger Health System, where he is the Medical Director of Clinical Pathology Informatics. Dr. Olson performs clinical work on the transfusion medicine and apheresis services. He focuses on laboratory quality improvement and efficiency through informatics tools and automation. He also is heavily involved in developing reflexive testing algorithms to add value for clinicians, developing and maintaining the laboratory formulary, and improving laboratory utilization to ensure the patient gets the best test the first time while minimizing waste.
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Liron Pantanowitz is a Professor of Pathology and Biomedical Informatics at the University of Pittsburgh in the USA. He is the Director of Pathology Informatics and Director of the Pathology Informatics Fellowship Program and the University of Pittsburgh Medical Center (UPMC). He is also the Director of Cytopathology at UPMC Shadyside. Dr. Pantanowitz is an Editor-in-Chief of the Journal of Pathology. He is a past president of the Association of Pathology Informatics, serves on the digital pathology committee of the College of American Pathology and he is a member of the Digital Pathology Association board of directors. His research interests include cytopathology and informatics.

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Dr. Pettus is a surgical pathologist at Dartmouth-Hitchcock Medical Center in Lebanon, NH, with primary responsibilities in genitourinary, head & neck, and medical renal pathology. In the realm of AP informatics, he has interests in report standardization, structured data capture, and downstream utilization of AP data within the broader electron health record and research enterprises. Dr. Pettus is also a current member of the College of American Pathologists Pathology Electronic Reporting (PERT) Committee.

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Josien Pluim is professor of Medical Image Analysis at Eindhoven University of Technology, with a joint appointment at the UMC Utrecht, for one day a week. She is head of the Medical Image Analysis group (IMAG/e, www.tue-image.nl). Her research focus is on image analysis (e.g. registration, segmentation, detection, machine/deep learning), both methodology development and clinical applications. The latter in particular targeted at neurology and oncology. Most of the research is performed in cooperation with clinical partners and/or industry. Pluim is associate editor of five journals (IEEE TMI, IEEE TBME, Medical Physics, Journal of Medical Imaging and Medical Image Analysis) and a member of the Executive Board of the MICCAI Society. She was conference chair of SPIE Medical Imaging Image Processing 2006-2009, chair of WBIR 2006 and programme co-chair of MICCAI 2010. She is a fellow of the MICCAI Society and of the IEEE.
Dr. Juan Antonio Retamero is a specialist doctor in Anatomical Pathology. He practices at Granada University Hospitals, Spain, a fully digital laboratory since summer 2016. He played an important role in the transition to digital pathology and 100% digitization of their biopsy caseload. He is also a Member of the Royal College of Psychiatrists and a published author. Outside of the hospital, he enjoys playing the double bass in a popular music ensemble, and has played in an amateur symphonic orchestra. Other interests range from literature to seasonal sports, enjoying skiing as well as being a PADI-certified open water scuba diver.

Dr. Jaime Rodriguez-Canales received his MD degree and Anatomic Pathology specialization at the Pontifical Catholic University of Chile. From 2002 he spent a 3-year fellowship in surgical pathology under the direct supervision of Dr. Juan Rosai (Milan, Italy). During his fellowship with Dr. Rosai, Dr. Rodriguez was also certified in Anatomic Pathology by the European Board of Pathology. From 2005 to 2012, Dr. Rodriguez was postdoc visiting fellow and research fellow at the Pathogenetics Unit and LCM Core lab of the Laboratory of Pathology at the National Cancer Institute, National Institutes of Health, where he worked in laser capture microdissection projects with Dr. Michael Emmert-Buck. In 2012, Dr. Rodriguez joined Dr. Ignacio Wistuba’s lab at the University of Texas—MD Anderson Cancer Center, being promoted to Assistant Professor and Director of the Immunohistochemistry & Digital Pathology lab at the Department of Translational Molecular Pathology, MD Anderson Cancer Center (Houston, TX). In August 2017, Dr. Rodriguez accepted a new position as Senior Pathologist at the Laboratory of Pathology at MedImmune, in Gaithersburg, MD. Part of Dr. Rodriguez focus has been on the optimization of multiplex immunofluorescence and multispectral imaging (Vectra/Polaris™, PerkinElmer) for immuno-oncology, in close collaboration with Clifford Hoyt from PerkinElmer’s team.

Eduardo was born in Chinácota (Colombia-South America). In 1988 he obtained his diploma as a Medical Doctor from the Universidad Nacional de Colombia and as a Magister in Electrical Engineering from the Universidad de los Andes in 1995. He obtained his PhD in Biomedical Sciences from the Université Catholique de Louvain in 2000. Between 2000-2002 he worked as a Senior Researcher at the Communications and Remote sensing laboratory (UCL—Belgium), in the group of Medical Images. During 2003 he was with the group of chemical sensors at the Centro Nacional de Microelectrónica (CNA—Spain). Currently he is full professor attached to the Telemedicine Centre of the Faculty of Medicine and leads both the Cimalab group (www.cimlab.unal.edu.co) and the Biomedical Engineering postgraduate program. He has been focused lately on computational models applied to develop metrics to compare complex biological patterns, in particular in some pathological structures.
Mohamed Salama, MD

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Dr. Salama is currently the Medical Director of Mayo Medical Laboratories and member of Department of Pathology at Mayo Clinic, Rochester, MN. For the last 12 years Dr. Salama was a Professor of Pathology at the University of Utah, Chief of hematopathology and Vice President of the Associated Regional University Pathologists (ARUP) reference laboratories. Dr. Salama received his medical degree from Cairo University followed by a diploma of hospital administration and health care management from the American University of Cairo. Dr. Salama completed his Anatomic and Clinical Pathology residency at Henry Ford Health System, followed by a surgical pathology fellowship at Stanford University and hematopathology fellowship at the University of New Mexico. Dr. Salama is certified by the American Board of Pathology in anatomic and clinical pathology as well as hematopathology.

Dr. Salama’s clinical interests span all aspects of hematopathology, including morphology, flow cytometry, molecular, and other specialized studies of bone marrow and lymph nodes pathology. His research work has focused on characterization and correlation of genetic/molecular aberrations and protein expression as well as morphometry using novel digital imaging tools. Dr. Salama has special interest in developing innovative technologies and bringing these applications into the clinical laboratory. He has authored more than 100 peer reviewed publications, books and book chapters, most recently as a co-editor to the 7th edition of Hoffman’s Hematology; Basic principles and practice. Dr. Salama currently serves as the Chair of the Hematopathology Committee on Myeloproliferative Disorders Research Consortium.

Kiran Saligrama

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Kiran Saligrama heads up Software Architect across multiple software development sites within Leica Biosystems. He also leads a team of engineers based in Vista, Calif. During his 15-year tenure, Kiran helped create one of the first Aperio Digital Pathology systems adopted widely in multiple markets. He has driven an open strategy using architecture focused on APIs and open standards. As an engineer, he continues to bring innovation in scanning, viewing and image analysis. Kiran holds a master’s degree in Electrical Engineering from University of Michigan. In his spare-time he enjoys running and learning new languages.
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Joachim has over 18 years’ experience in Cytology & Digital Pathology beginning his career at Tripath Imaging and as the R&D director at Dako. Joachim joined Ventana in 2014 as the Director of Engineering, and became Vice President of Research Development in 2015.

As Vice President of Research Development—Mountain View, Joachim oversees the R&D organization in Mountain View focusing on the support of Digital Pathology business. He holds a Dr. Ing. Degree, Faculty of Electrical Engineering (PhD equivalent) and a Diplom of Electrical Engineering (master’s degree equivalent), both from the University of Stuttgart (Germany).

Kinjal Shah, MD
Assistant Professor and Associate Residency Program Director, Transfusion Medicine & Blood Banking, Department of Pathology and Laboratory Medicine, University of Tennessee Health Science Center
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Dr. Kinjal Shah is an Assistant Professor and Associate Residency Program Director in Department of Pathology at University of Tennessee Health Science Center. She trained in Anatomic and Clinical Pathology Residency at the University of Miami. She completed her fellowship in Transfusion Medicine at Emory University. She has a special interest in applying informatics to improve physician practices surrounding selection and transfusion of blood products to ultimately improve patient outcomes.

S. Joseph Sirintrapun, MD, FASCP, FCAP
Director of Pathology Informatics, Diplomate, Clinical Informatics (ABMS), Assistant Attending; Department of Pathology, Memorial Sloan Kettering Cancer Center
NEW YORK, NY | sirintrs@mskcc.org

Dr. Sirintrapun is the Director of Pathology Informatics at Memorial Sloan Kettering Cancer Center and an Assistant Attending and member of the Warren Alpert Center for Computational Pathology. Dr. Sirintrapun is board certified in Anatomic and Clinical Pathology and Clinical Informatics. In addition to his work in informatics, he practices surgical pathology specializing in genitourinary tumors. Dr. Sirintrapun is an active member of API for over ten years, having served many years on the Membership Committee. He currently serves on the College of American Pathologists Pathology Electronic Reporting Committee and on the American Society of Clinical Pathology Pathology Informatics Committee. He is also section editor of Diagnostic Pathology.

Dr. Sirintrapun’s research interests are in anatomic pathology informatics, specifically image digitization, telepathology, data interoperability, and systems and network analysis. He is dedicated to better understanding for the cognitive and social impacts of technology on clinical practice. His strength and focus...
are on the “operationalization”, translating innovations in digital pathology and computational pathology to practice. His efforts have resulting in the large scale clinical utilization of digital glass slides and telecytology at his institution. Dr. Sirintrapun is also engaged in the cultivation of a medical and technological workforce to propel pathology informatics and computational pathology.

Jeroen van der Laak, PhD

**Associate Professor, Radboud University Medical Center**

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Jeroen van der Laak is associate professor in computational Pathology at the Department of Pathology of the Radboud University Medical Center in Nijmegen, The Netherlands. His research group investigates the use of deep learning based analysis of whole slide images for different applications: improvement of routine pathology diagnostics, objective quantification of immunohistochemical markers, and study of novel imaging biomarkers for prognostics. Dr van der Laak has an MSc in computer science and acquired his PhD from the Radboud University in Nijmegen. He co-authored over 90 peer-reviewed publications and is member of the editorial boards of Laboratory Investigation and the Journal of Pathology Informatics. He is a member of the board of directors of the Digital Pathology Association and organizer of sessions at the European Congress of Pathology and the Pathology Visions conference. He coordinated the highly successful CAMELYON grand challenges in 2016 and 2017. Dr van der Laak acquired research grants from the European Union and the Dutch Cancer Society, among others. He is frequently invited as a speaker at international conferences.

Christopher L. Williams, MD

**Director of Pathology Informatics, University of Oklahoma Health Sciences Center**

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Dr. Chris Williams received a BS and MS in Electrical and Computer Engineering from Oklahoma State University in Stillwater, Oklahoma, in 2003 and 2004, respectively. Prior to starting medical school, he worked as an Electronics Engineer (civilian) at Tinker Air Force Base in Oklahoma City, Oklahoma. Dr. Williams received am MD from University of Oklahoma College of Medicine in Oklahoma City in 2011 and completed training in Clinical Pathology at OU Medical Center in 2014. Dr. Williams joined the University of Michigan Department of Pathology in July 2015 for fellowship training in Clinical Informatics. Upon completing his CI Fellowship in 2017, he returned to OUHSC to lead informatics initiatives within the department of pathology and across campus. He is board certified in Clinical Pathology Clinical Informatics.
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API Digital Pathology Workshop 2.0

*Designed for pathologists and lab professionals who need to understand the fundamentals of digital pathology technology.*

December 7-8, 2018 | Columbus, OH
The James Cancer Hospital and Solove Research Institute at Ohio State University
Registration opens June 1, 2018.

This workshop is the second in a planned continuing series of hospital-based, practical workshops focused on digital pathology. Short, didactic lectures by national experts will be punctuated by round-table discussions including vendor representatives. **Topics covered include:** the development of RFPs for the digital pathology equipment, improving surgical pathology workflow on the basis of LEAN principles, and integration of the new technology with current LISs and automated equipment. The price includes conference dinner starting at 7:00 p.m. to provide more time for interaction with faculty and registrants.

**Friday, December 7:** The workshop will begin at 9:00 a.m., with coffee and a light breakfast. Friday morning and afternoon sessions will consist of lectures, faculty Q and A, and faculty/industry discussion panels.

**Saturday, December 8:** Today’s workshop features a tour of the clinical laboratories at The James Cancer Hospital and Solove Research Institute (Ohio State University), faculty/industry panels, and a summary of “lessons learned”. Conference adjourns at noon.

Registrants should have a keen interest in deploying a digital pathology system in their practices and will come away from the experience with a broad range of practical ideas about how to rapidly pursue this goal. **Registration limited to 75 on a first-come, first-served basis.**

For more information, visit the API website: PathologyInformatics.org. Registration for attendees and sponsors opens June 1, 2018.
2018 MAP OF EXHIBITORS

EXHIBITOR BALLROOM HOURS

7:00-8:00 a.m.  Breakfast
8:00-9:00 a.m.  OPEN
9:00-10:00 a.m. CLOSED
10:00 a.m.-Noon OPEN (Snack Break 10:20-11:20 a.m.)
Noon-1:00 p.m.  Lunch
1:00-3:00 p.m.  CLOSED
3:00-5:00 p.m.  OPEN (Snack Break 3:35-4:00 p.m.)
5:30-7:00 p.m.  (TUESDAY ONLY) OPENING RECEPTION
SAVE THE DATE
May 6–9, 2019
Pittsburgh, PA

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for Pathology
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Association for Pathology Informatics
Pathology Informatics Summit
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