

Cancer Biomarkers AI and Bioinformatics Workshop

| CANCER BIOMARKERS AI AND BIOINFORMATICS WORKSHOP | | |
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| Day 1 - August 13, 2024 (PT) | | |
| Duration | | |
| 8:00 AM | 0:30 | Registration and sign-in. |
| 8:30 AM | 0:10 | Welcome George Djorgovski, Ph.D., Caltech |
| 8:40 AM | 0:10 | Overview and Goals for the Meeting Dan Crichton, Jet Propulsion Laboratory, Caltech |
| 8:50 AM | 0:20 | Role of AI in Early Detection and Cancer Biomarker Research Sudhir Srivastava, Ph.D., National Cancer Institute |
| 9:10 AM | 0:45 | Keynote: Making sense of biomedical data using the tools of AI Lior Pachter, Ph.D., Caltech |
| 9:55 AM | 0:20 | BREAK |
| 10:15 AM | | Session 1: In Silico and Real World Biomarker Discovery and AI |
| 10:15 AM | 0:05 | Introduction of session Moderator: Matt Schabath, Ph.D., Moffitt Cancer Research Center |
| 10:20 AM | 0:20 | Vision-Transformer based pipeline for investigating the association between cancer pathology images and immuno-characteristics Chad He, Ph.D., Fred Hutchinson Research Center |
| 10:40 AM | 0:20 | Deep Learning AI Predicts HRD and Platinum Response from Histologic Slides Erik Bergstrom, Ph.D., UC San Diego |
| 11:00 AM | 0:20 | OmicsCurveNet: Transforming Omics Data to Images for Biomarker Discovery Through Deep Learning Zhen Zhang, Ph.D., Johns Hopkins University |
| 11:20 AM | 0:40 | Panel Discussion Moderator and Speakers |
| 12:00 PM | 1:00 | LUNCH |
| 1:00 PM | 0:45 | Keynote: Veridical Data Science and PCS Uncertainty Quantification Bin Yu, Ph.D., University of California, Berkeley |
| | | Session 2: Biomarker Computation and Methodology Considerations for applying AI |
| 1:45 PM | 0:10 | Introduction of session Moderator: Steven Skates, Ph.D., Massachusetts General Hospital, Harvard Medical School |
| 1:55 PM | 0:20 | Machine learning and biomedical applications: promise and peril Padhraic Smyth, Ph.D., UC Irvine |
| 2:15 PM | 0:20 | Evaluating the robustness of a foundation model in generating features from lung nodule regions in CT with different acquisition and reconstruction parameters Stephen Park, Ph.D., UCLA |
| 2:35 PM | 0:20 | No winners: Performance of lung cancer prediction models depends on screening-detected, incidental, and biopsied pulmonary nodule use cases Thomas Li, B.S., Vanderbilt University |
| 2:55 PM | 0:40 | Panel Discussion Moderator and Speakers |
| 3:35 PM | 1:30 | Poster Session and Coffee |
| 5:05 PM | | Adjourn |
| Day 2 - August 14, 2024 (PT) | | |
| 8:00 AM | 0:30 | Sign-in |
| 8:30 AM | 0:05 | Summary of Day 1 Dan Crichton, Jet Propulsion Laboratory |
| 8:35 AM | 0:40 | Keynote: AI and Computation Microscopy: Visual biomarkers for disease progression predictions Yang Changhuei, Ph.D., Caltech |
| 9:15 AM | | Session 3: Considerations in Data Preparation, Sharing, and Analysis |
| 9:15 AM | 0:05 | Introduction of session Moderator: Jennifer Beane-Ebel, Ph.D., Boston University |
| 9:20 AM | 0:20 | Curating AI-ready datasets for pediatric oncology: the Pediatric Cancer Data Commons Kaitlyn Ott, M.S., University of Chicago |
| 9:40 AM | 0:20 | Lessons Learned in Federated Cancer Research Pilots Spanning Four NIH-Designated Comprehensive Cancer Centers Michael Rosenthal, Ph.D., Dana Farber Cancer Institute, Harvard University |
| 10:00 AM | 0:20 | Practical considerations in preparing and sharing AI-ready medical images William Hsu, Ph.D., UCLA |
| 10:20 AM | 0:20 | COFFEE BREAK |
| 10:40 AM | 0:30 | Panel Discussion Moderator and Speakers |
| | | Session 4: Emerging Capabilities and Methodologies in AI |
| 11:10 AM | 0:05 | Introduction of session Moderator: Ashish Mahabal, Ph.D., Caltech |
| 11:15 AM | 0:20 | Harnessing Distributed Intelligence with Privacy Preservation: Federated Learning in Oncology – A Preliminary Simulation Study Ghulam Rasool, Ph.D., Moffitt Cancer Center |
| 11:35 AM | 0:20 | Digital Twin for Personalized Management of Patients with Prostate Cancer Radka Stoyanova, Ph.D., University of Miami |
| 11:55 AM | 0:20 | Hybrid Extended Reality Data Visualization for Medicine George Djorgovski, Ph.D., Santiago Lombayda, Caltech |
| 12:15 PM | 0:30 | Panel Discussion Moderator and Speakers |

