BME DESIGN DAY 2022

JOHNS HOPKINS BIOMEDICAL ENGINEERING

CENTER FOR **BIOENGINEERING INNOVATION & DESIGN**

AGENDA

9:00 am – 10:15 am — **Poster Session A**

10:15 am – 11:30 am — **Poster Session B**

11:30 am – 1:00 pm — **Lunch - Hackerman Lobby**

1:00 pm – 2:00 pm — **Welcome & Keynote Presentation
Krista Donaldson
CEO, Equalize Health**

2:00 pm – 3:15 pm — **Student Presentations:
CBID Master's Projects**

3:15 pm – 3:45 pm — **Break**

3:45 pm – 4:45 pm — **Student Presentations:
Design Team & Project-Based
Courses**

4:45 pm - 5:00 pm — **Awards**

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POSTER SESSION A

Shriver Lobby
Precision Care Medicine
- Prediction of the Microbial Origin of Presumed Sepsis in PICU Encounters
- Predicting COVID-19 Resistance Using JH-CROWN Dataset
- Development and Validation of a Clinical Decision Support Tool for Prediction of Weaning Outcome on Admission to the Intensive Care Unit
- Artificial Intelligence Assessment of Ocular Torsion from Conventional Funduscopic Photography and other Ocular Imaging and Recordings

Shriver Boardroom
BME Design Team
- SafeShunt: Detecting failure of cerebrospinal fluid shunts in patients with Hydrocephalus
- PAPmate: Augmenting bCPAP systems to reduce nurse workload and improve neonatal development
- Scentcare: A novel At-Home Olfactory Training and Testing Device
- Silectrode: Novel electrodes for improved intraoperative nerve action potential recording during the treatment of peripheral nerve injuries
- InVenimus: Improving Intravenous Access in Pediatric Patients
- Tempo: Improving Temporary Epicardial Pacing Wire Removal

Shriver Auditorium Stage
CBID Global Health
- Visilant: Increasing Access to Eye Care through Community-Based Telemedicine
- VectorCam: Fighting Malaria One Image at a Time
- MalariaVision: Automating Malaria Microscopy in Uganda
- CurveAssure: Spinal Implant System to Promote Sagittal Alignment with Dynamic Fixation
- LaparoscopiX: Expanding Access to Minimally Invasive Surgery

Rehabilitation Engineering
- Self-Tightening Brace for Upper Arm Fractures
- Biogaming
- Positional Magnetic Wheelchair Control Interface
- Haptic Feedback Device for Lower Limb Amputees

Independent Design
- Engineered Therapeutic Viruses can Target Abnormal RNA Splicing in Cancer

Shriver Auditorium Floor
BME Design Team
- Pleuropsy: Pleural Biopsy Made Simple
- FiOR: Automating the Future of OR Safety
- Earlier Detection of Hypoxemia in Dark Skin Tone Patients

Advanced Design Team
- FreeFlo2: Creating a Smart Oxygen Delivery System to Match Patient Needs

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Johns Hopkins
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POSTER SESSION B

Shriver Lobby
Precision Care Medicine
- Early Prediction of Length of Stay in Hospitalized Patients with Stroke and Traumatic Brain Injury
- Identification and Validation of a CCEP-Derived Computational Marker of the Epileptogenic Zone
- Prediction of Neurologic Injury in Pediatric ECMO
- Prediction of Cardiac Arrest in the Pediatric ICU

Shriver Boardroom
BME Design Team
- ICPredict: A Non-Invasive Way of Measuring Intracranial Pressure
- The Bronchosleeve: Streamlining One Lung Ventilation
- Manevra
- OCTeam
- DiscovEAR: An endoscopic attachment system for visualization of the Eustachian tube lumen

Advanced Design Team
- DioTeX: Hemorrhage Diagnostics

Shriver Auditorium Stage
CBID US Healthcare
- LymphaSense: Enabling Life-Changing Lymphedema Screening
- CurveAssure: Enhancing Spine Surgery with Preoperative Dynamic Posture Diagnostics
- β-Trace: Providing Innovative Radiation Therapies for Pancreatic Cancer Patients
- SealCore: Making Kidney Biopsies Safer for All Patients
- InWave: Healthy Sleep for Healthy Aging

Neuro Data Design
- Decision Forests / Deep Networks
- Scene Segmentation Using Progressive Learning
- Streaming Synergistic Forests

Independent Design
- Real Time Brain Signal Analysis for Deep Brain Stimulation
- Privacy-Preserving Model Training for Breast Cancer Prediction

Shriver Auditorium Floor
BME Design Team
- DermaMark: Finite Surgical Site Localization
- Neuraskull Technologies: The CranioSpring
- NeoHydrate
- SynoSim: Improving Joint Access Procedural Competence

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STUDENT PRESENTATIONS

CBID Master's Projects

- VectorCam: Fighting Malaria One Image at a Time
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Design Team & Project-Based Courses

Neuro Data Design

- Kernel Density Graphs
- Multivariate Feature Selector

Precision Care Medicine

- Prediction of Cardiac Arrest in the Pediatric ICU
- Artificial Intelligence Assessment of Ocular Torsion from Conventional Funduscopic Photography and other Ocular Imaging and Recordings

Advanced Design Team

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