# ECE MDE Expo Fall 2024

**Wednesday, 20 November 2024 - Wednesday, 20 November 2024**

**The Inn at Virginia Tech**

# Scientific Programme

# Track 1 - Latham A

**Interactive Digital Twin for Dynamic Building Management**

**Blue Sentinel: Tactical Decision Aid**

**Bluetooth Asset Tracker**

**Sub-1-GHz Direction Finder**

**Project LLM: An Offline Chatbot Memory Solution**

# Track 2 - Duck Pond

**Framework for a Wide Field of Regard Scanning LiDAR**

**Infrared Friend-or-Foe Identification Sensor Design and Vision System for Lightweight UAV**

**Exploiting Bluetooth Vulnerabilities in the Nordic Thingy**

**Bluetooth Low Energy (BLE) Based Mesh Network**

**Network Portscan Display Panel Challenge**

# Track 3 - Smithfield

**Robotic Motion Planning**

**Sensor Fusion for Autonomous Navigation**

**Wooden Pallet Life-Cycle Tracking**

**Swarm Robots for Disaster Response**

**Optic Sensor and Vision System for Lightweight UAV**

## Track 4 - Solitude

**Autonomous Water Monitoring System for Remote Creek Management**

**Fabricating Microneedle-Based Medical Delivery Patches**

**Portable Transmitter Location System**

**Inverse Design of Passive RF Components**