Kevin Tomsovic

Director

CURENT Engineering Research Center

University of Tennessee

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CURENT

Center for Ultra-wide-area Resilient Electric Energy Transmission Networks

an **Engineering Research Center** devoted to **improving** the nation's power grid

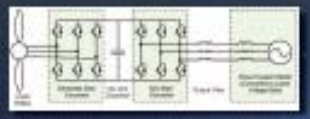
Wide-area Situational Awareness

Fully Integrated Grid with High Penetration of Renewables

Wide-area Closed Loop Control

Control

- closed loop control using wide-area monitoring across multiple time scales
- coordinated renewable energy source controls



Modeling & Estimation

- robust phasor-only static and dynamic estimator development
- real-time large scale data security

Actuation

- multi-terminal HVDC system control
- renewable energy converters as compensator
- hybrid AC/DC transmission architecture

Monitoring

- FNET/GridEye system allows for event detection, size, and location estimate
- automated oscillation alert and analysis
- improved visualization tools
- real-time situational awareness & visualization tools
- off-line pattern discovery

Testbeds

- a large-scale testbed provides simulation platforms to evaluate & demonstrate solutions for the future grid & advanced concepts
- the Hardware Universal Grid Emulator allows testing of various power system architecture and integration of key technologies

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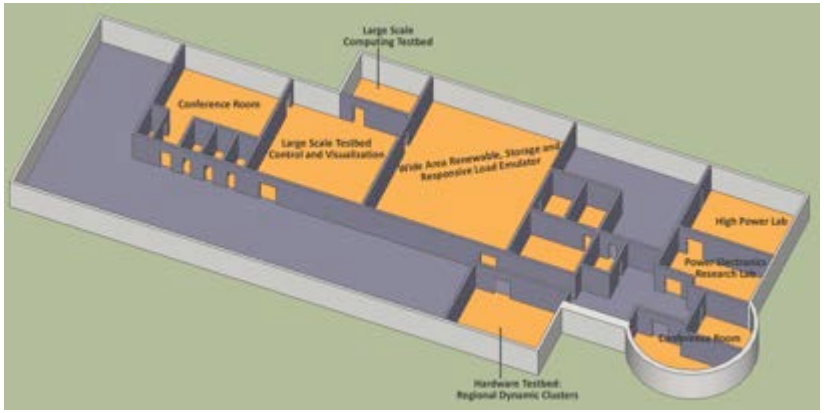
CURENT Headquarter Facilities

Min Kao EECS Building



First Floor: 7,500 sq ft

Min Kao Building

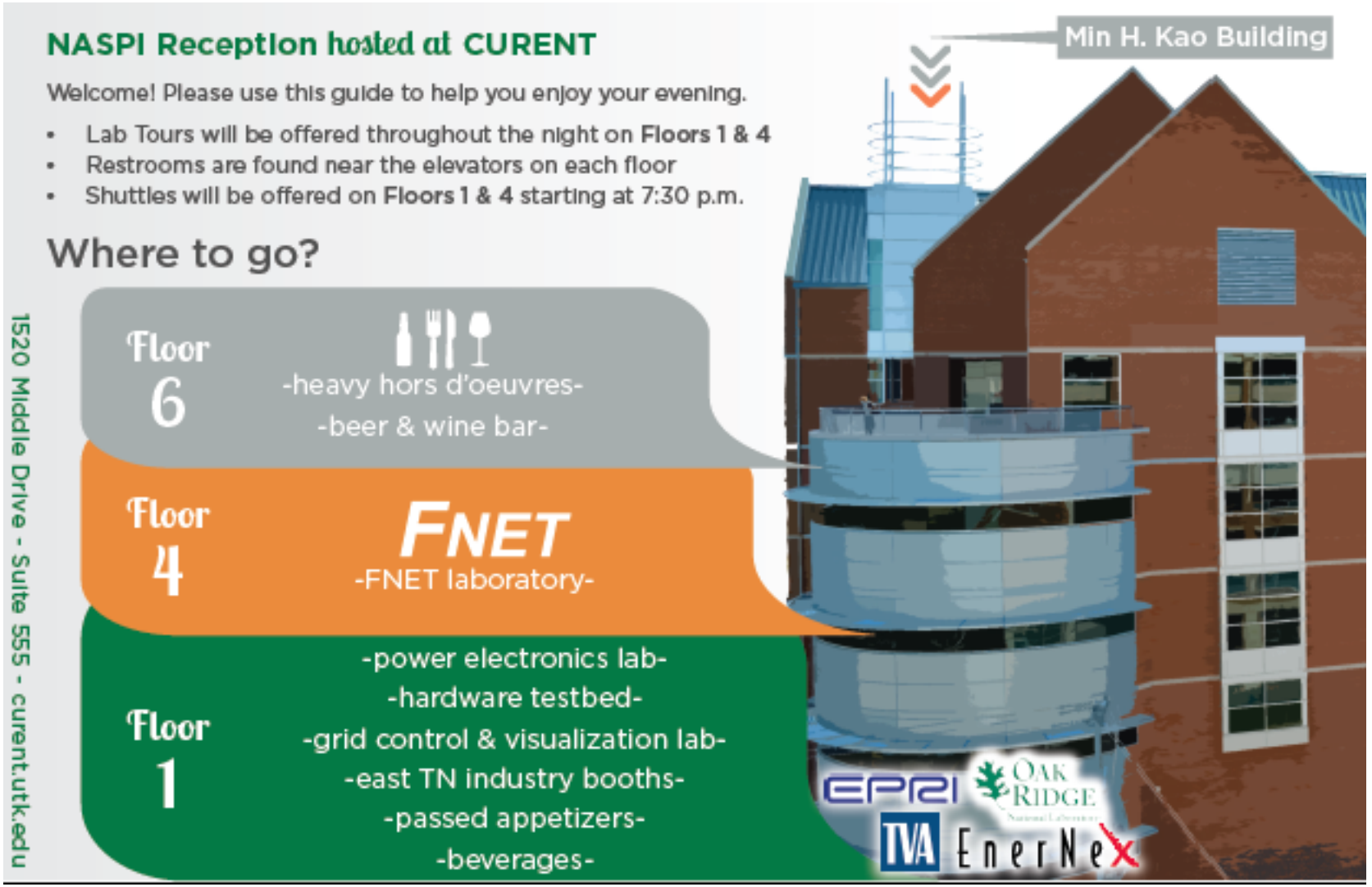
- Min Kao – co-founder of Garmin
- Facility: $37.5 million, 150,000 sq ft building opened January 2012.
- Home for Department of Electrical Engineering and Computer Science
- CURENT has over 16,000 sq ft of space for offices, conference rooms, laboratories, and testbeds.

Reception Logistics

- Shuttle service located at the World's Fair Entrance
- 10-Minute walk – students and faculty will assist

CURENT

NASPI Reception



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- Modeling — **A. Abur, NEU**
- Control — **J. Chow, RPI**
- Actuation — **F. Wang, UTK**
- Engineered Systems — **L. Tolbert, UTK**

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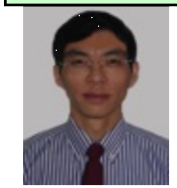

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