

# Top Visual Demonstrations

TOP VISUAL DEMONSTRATIONS: RESEARCH@INTEL DAY

## **Life Sciences - Exploration**

### **Personal Robotics at IR Pittsburgh: BarKeep**

Map Location: H

The Personal Robotics project aims to enable robots to perform useful tasks in unstructured home and office environments. BarKeep is an autonomous robot developed at IR Pittsburgh that demonstrates integrated perception, navigation, planning, and grasping for the task of loading mugs from a mobile Segway into a dish rack, using an anthropomorphic robot arm.

## **Visual Computing and Tera-scale:**

### **Interactive ray-tracing on multi-core IA**

Map Location: F

Ray tracing uses computational modeling to simulate light rays in a 3D scene. The trend to multi-core makes it possible to use ray tracing for interactive 3D graphics for a variety of visual computing applications. We demonstrate a collaboration with researchers at VRContext to enable the visualization of extremely complex industrial models using Intel multi-core processors. We also provide an update on Intel's Real-Time Ray Tracing research project targeting photorealistic consumer applications.

### **“Smart Car” Using Computer Vision to Recognize and Track Objects for Driver Assistance and Safety**

Map Location: F

Ct is an Intel research effort focused on extending C/C++ to help mainstream programmers efficiently create highly-parallelized and scalable software that takes full advantage of Intel's current multi-core and future tera-scale processors. We show how Neusoft & Intel created a Ct proof-of-concept demo for a “smart car” that uses computer vision to track objects for driver assistance.

### **Intelligent Photo and Video Search**

Map Location: F

Tera-scale processors will give devices the ability to understand the contents of visual media. The Intel China Research Center is developing techniques for the computational perception of people, objects, scenes, and events and is a leading participant in National Institute of Standards (NIST) competition on media mining. We demonstrate our latest results, with performance optimized for using many threads on many cores.

## **Environment**

### **Common Sense Environmental Sensing**

Map Location: H

Citizens are often motivated to seek information. The Common Sense team is developing prototypes of mobile environmental sensing platforms that empower individuals and communities to gather, analyze, and share information in order to influence environmental policy. We will present our prototype and the results of our current deployment on street sweepers in San Francisco.

## **Healthcare:**

### **Enabling biomedical research and getting results: Gait Analysis System for Older People**

Map Location: C

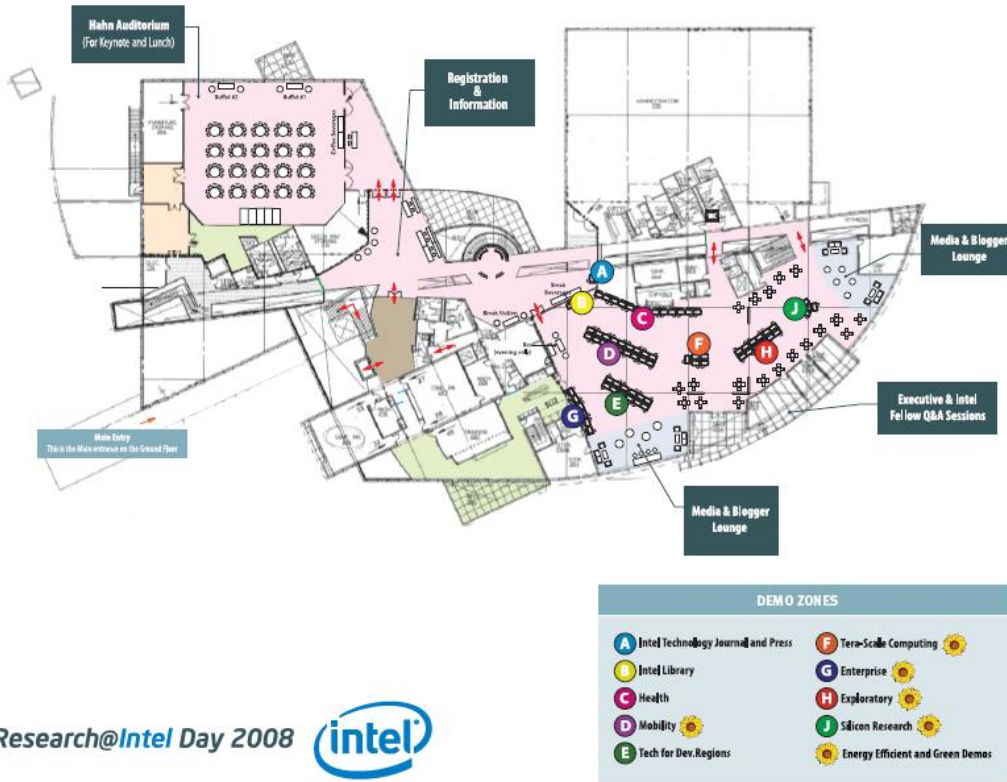
There is a long standing need within the biomedical research community to rapidly develop systems which allow researchers to investigate hypothesis either in the lab or a home environment. BioMOBIUS™ Research Platform represents a closely integrated combination of low cost hardware and software components which can be used by a wide variety of users, including those with a limited technical knowledge, to build research tools in an expeditious fashion. SHIMMER in combination with the BioMOBIUS software environment provides researchers with a significant set of capabilities to investigate some of the key conditions which affect older people, such as falling injuries. These demos will introduce you to how BioMOBIUS provides the key technology capabilities to facilitate the development of a state of the art gait analysis system which helps to reveal the key factors in people's gait, determining their risk of falling. In the longer term it is hoped that breakthroughs will help to improve the quality of life for older people and to reduce a significant burden on the healthcare system.

## **Wireless**

### **Real-Time Visual Mobile Object Recognition**

Map Location: D

Object recognition has been a grand challenge in computer vision for decades because it will let computers see the world the way humans do. This demo showcases a real-time object instance recognition system that recognizes whether an image contains an identical copy of an object the system has been trained to recognize.



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