Intel Corporation
2200 Mission College Blvd.
Santa Clara, CA 95054-1549

Demo Fact Sheet

Note to Editors: keynotes presentations and pictures will be available at **www.intel.com/newsroom/idf**

Intel Labs Envision the Future Computing Experience

Sept. 12, 2010 — Intel Labs hosted a media briefing on the eve of the Intel Developer Forum in San Francisco to discuss research efforts and their vision for the future of user experiences with technology. Here is a summary:

Genevieve Bell's keynote, "All you Need is Love: The Future of the Computing Experience"

Creating the technology experiences of tomorrow that people will crave begins with understanding what they love about their everyday lives. In this presentation, Intel Fellow and Director of Intel's Interaction and Experience Research, Genevieve Bell, discussed the approach that her team is taking today to create compelling experiences that will fuel the next wave of technology advancement. Dr. Bell demonstrated how real life inspires innovation so that future technologies will adapt to and enhance the way we work and live.

Horst Haussecker's keynote, "Bringing Future Computing Experiences to Life"

An overview of the Experience Technology Lab in Intel Labs' Interactions and Experiences Research was provided. Recently created with the charter to "create the technologies that will be at the core of our next-generation user experiences," the Experience Technology Lab implements easily functional experiences through world-class technology innovation. Horst shed light on the philosophy behind our approach to technology development and gave an overview of the spectrum of technical expertise and the process for carrying experience technologies to impact Intel platform

The following future-oriented research projects were demonstrated:

Research project name: OASIS
Developed: Intel Lab in Seattle
Leading researcher: Beverly Harrison
Project description: OASIS (Object-Aware Situated Interactive System) combines real-time computer vision algorithms, 3-D cameras and micro-projection for fast recognition and tracking of everyday physical objects and gestures. This demo used projected displays on everyday household surfaces to create interactive "islands" for in-home applications. This is easy to retrofit to

any home and room, and almost any horizontal or vertical surface. This project anticipates new capabilities for the future home and implications for home server applications and functions.

Project objective: This is an example of how 3-D object recognition and gesture-based interaction can be used in a home environment. This technology can apply to different usage models, such as playing with toys.

Technology: Intel used a 3-D camera, PC and projector. The company believes all these components will fit into a cell-phone size form factor as these devices improve in cost, power and performance. This is where future- generation of powerful yet power efficient chips will enable design of new devices, connected with the Internet, attached under your top kitchen cupboards used with everyday objects, on everyday surfaces, with everyday gestures.

Additional multimedia:
YouTube video: www.youtube.com/watch?v=1V3M0bMvtjs&feature=youtube_gdata

Research project name: Context-Aware Vehicle
Developed: Intel Lab in Hillsboro
Leading researcher: Vu Nguyen

Project description: The number of devices and services in vehicles has rapidly increased over the last decade. Nowadays it is possible to make a phone call, activate cruise control and manipulate a navigation system and many other things while driving. This leads to a safety issue, whereby the driver spends more time looking at menus and pushing buttons which could occupy both hands and eyes, taking attention away from the primary task of driving. The use of an in-vehicle context-aware system is especially important to improve the safety of the driver and passengers.

Project objective: The demonstration showcased Intel Labs' face recognition algorithm with Intel's embedded devices to provide access to the vehicle infrastructure and identifying in-vehicle behavior with embedded cameras and sensors to provide transparent safety and convenience services for driver/passengers.

Technology: This demo uses Intel Labs' face recognition software, context engine, environmental sensors and personal preferences to enhance driver safety and convenience.

Research project name: Facial Recognition
Developed: Intel Lab in Seattle
Leading researcher: Jeff Hightower

Project description: Computer vision and perception algorithms such as real-time face recognition can be made practical on Intel® Atom-™class mobile devices through machine learning, low-power networking and parallelization in the cloud.

Project objective: Intel demonstrated the performance gains and power savings that can be achieved by making use of the capabilities of Intel Atom processors and intelligently choosing parts of the computer vision computation to offload to the cloud.

Technology: The primary technologies demonstrated were face recognition on a mobile-class device and client/cloud processing.

Additional multimedia: http://software.intel.com/en-us/videos/low-power-mobile-computer-vision/

Research project name: Cloud-based ray tracing for games
Developed: Intel Lab in Santa Clara
Leading researcher: Daniel Pohl (demonstration developer), Bill Mark (Ray tracing team manager)
Project description: This demo showed how future gaming experiences on mobile devices could be enhanced by Intel-based servers in the cloud. Intel Labs researchers showed a demo (Wolfenstein: Ray Traced) that adds new special effects to a game using real-time ray tracing for rendering. On the server side, the demo utilized an array of machines based on Intel's new "Knight's Ferry" Many Integrated Core (Intel® MIC) Architecture software development platform Intel is developing for high-performance computing applications. Four Knight's Ferry servers were used to represent a future "cloud" of compute resources sending images to a mobile device. During the demonstration these servers rendered the images and streamed them over to a thin client (small laptop) where the gamer could play.
Project objective: To enable photorealistic interactive 3-D applications such as games by developing real-time ray tracing engines for Intel platforms.
Technology: Real-time ray-tracing was done in parallel on many-core hardware. Ray-tracing is a way of rendering graphics that uses the physics of light to draw a scene which can naturally produce very realistic shadows, reflections and other lighting effects. Ray tracing has been used for still images and Hollywood films where images are created in advance, but only recently has it been possible to process images fast enough for images such as games. The second technology was Knight's Ferry, a new MIC platform codename

Research project name: Classmate Assist
Developed: Intel Lab in Hillsboro, Ore.
Leading researcher: Richard Beckwith
Project description: The advent of 1:1 computing in the classroom opens the door for teachers to set up individualized learning for their students who have a wide spectrum of interests and skills. Classmate Assist technology uses computer vision and image projection to assist and guide students in a 1:1 learning environment, helping them to independently accomplish tasks at their own pace, while at the same time allowing teachers to be apprised of student progress.
Project objective: This was an example of how augmented reality can be used in classrooms. It also showed that performance support tools can be useful in an educational setting. Moreover, it was an example of how augmented reality can be done on Atom processors and netbooks.
Technology: The key technology here is machine vision. Intel runs this on a netbook-class machine with a camera that can be aimed at the table between the user and the screen.

Research project name: Mobile Augmented Reality
Developed: Intel Lab in Santa Clara
Leading researcher: Yi Wu

Project description: Intel demonstrated its Mobile Augmented Reality World Browser application on Intel's Atom platform. Intel's World Browser enriches the way users understand their world on an Intel Atom-powered device. Users can instantly access the huge reservoir of information on the Web by a simple click of the camera shutter. Intel's system identifies landmarks on the fly, using compute-intensive visual search in concert with power-efficient sensors, taking advantage of unique IA platform features.

Project objective: This was an example of the next wave of augmented reality where object recognition is used to provide greater precision over just GPS information. This demonstration also showcased how local and cloud processing can be used to provide the richest experience.

Technology: The primary technologies demonstrated were object recognition on a mobile class device and client/cloud processing.

Additional multimedia: http://software.intel.com/en-us/videos/mobile-augmented-reality/

Research project name: Multi-app Framework for TV

Developed: Intel, Oregon

Leading researcher: Daria Loi

Project description: This demonstration showcased three distinct user interfaces for Intel® Multi-App \Framework. Each UI showcased different ways of organizing, accessing and navigating applications on the TV; easy-to-use yet rich 2-D and 3-D user experiences; and multiple navigation paradigms.

Project objective: This demo aimed to demonstrate, through different user interfaces supporting one core technology, how to simultaneously execute multiple applications on the TV while successfully solving resource management and hardware conflicts introduced by having multiple apps run simultaneously.

Technology: Intel used a set top box (STB) running Intel Media processor CE4100, connected to an HDTV. The STB ran the three OpenGL based reference designs.

CONTACT: Radoslaw Walczyk
503-712-4305
radoslaw.walczyk@intel.com