Intel Labs

IMAGINATION

Universities

Government

Start ups

R&D

1000 people worldwide

REALIZATION

Ecosystem

- Customers
- Standards
- Suppliers

Products

intel.com/research

New: Intel Science and Technology Centers

- ISTCs funded for 3+2 years and span multiple institutions
- Encourage collaboration among top researchers in the field
- Four Intel funded researchers per center work on-campus
- Encourage collaboration between Intel and academia
- Public domain IP and open source software increase impact

Visual Computing
Stanford University

WEBSITE WHITEPAPER

Secure Computing
UC Berkeley

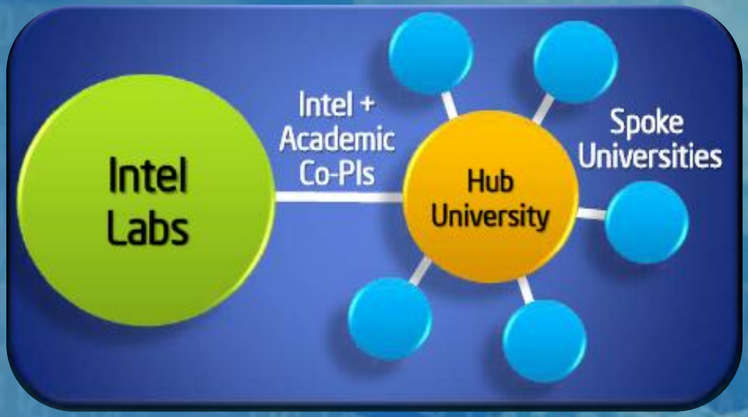
WEBSITE WHITEPAPER

Cloud Computing
Carnegie Mellon University

WEBSITE WHITEPAPER

Embedded Computing
Carnegie Mellon University

WEBSITE WHITEPAPER



Intel.com/go/istc

What do you get when you combine experts in academia with engineers from a global leader in technology?

A glimpse into technologies of the future. Today.

That's precisely what Intel Labs, the research arm of Intel, had in mind three years ago when it created the Academic Research Office (ARO). Since then, the ARO has built programs with Intel engineers and academic thought leaders from a variety of fields to explore and demonstrate breakthroughs that could influence Intel and the industry—for example, research into technologies that support and extend the spirit of Moore's Law or shed light on new and valuable uses for computing.

In the ARO, we understand that the next breakthrough technology may not be so apparent today. We also know it will never happen if we don't invest in and cultivate the ideas that can lead to it.

Intel Labs
Academic Research Office

"Intel's Circuit Research Lab focuses on pushing the performance limits of the next-generation computer interfaces to connect system components such as CPUs, peripheral devices, and memories. Working with the ARO let us leverage our research efforts and partner with leading universities such as UCLA, MIT, Oregon State University, and UC Berkeley to develop breakthrough solutions with the potential to dramatically improve performance of computer systems that depend on high-speed I/O."

– Bryan Casper, Principal Engineer, Intel

To learn more about the Academic Research Office, contact us at: ARO-inquiries@intel.com

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Intel Labs
Academic Research Office

Technologies of tomorrow, envisioned and explored today

Support to move beyond today's technology limits.

Within the ARO, we collaborate with academic researchers to provide the technical and financial support for projects that push technology beyond its known limits. The academic community can expect the following from us:

- Financial support for short- and long-term research programs
- Community-building with other experts in the field of research
- Collaboration with Intel technical experts and engineers
- Assistance procuring research funding from additional sources
- Paths to successful technology transfer

We think the best ideas come from combining a variety of perspectives. That's why we typically award multiple grants to professors from different universities and specialties to foster collaboration within a single program.

Priority research topics

The ARO advances research in the following areas:

- New uses of computing and their implications
- New paradigms for user experience and interaction
- Next-generation multi-core software engineering
- Internet-scale systems
- System-on-chip infrastructure
- Energy efficiency, storage, harvesting, and management
- Communications and networking
- Memory devices and storage hierarchy
- Materials and nanotechnology
- Emerging disruptive technologies

Engaging with the ARO

Our programs start when an Intel employee presents an idea to an ARO program director. In fact, anyone in the company can submit an idea and serve in a program leadership capacity.

Academic thought leaders can champion their ideas to the ARO through their technical counterparts at Intel. Because Intel engineers and researchers attend numerous professional events, academic researchers can easily engage with someone at Intel in their field. The ARO also connects with universities through workshops, requests for information (RFIs), "seedling" grants for exploratory research, and in other ways.

What happens after the ARO launches a research program?

We treat each program like any Intel project, though with considerations for university-based initiatives. The project team, which includes members from academia and Intel, will define project goals, key milestones, and measurable outcomes. Throughout the life of the project we review intermediate project results and implications, and identify opportunities for technology transfer.

To learn more about the Academic Research Office, contact us at: ARO-inquiries@intel.com

"Corporations often provide academic institutions with a nominal amount of research funding and expect them to yield breakthrough research. Intel has acted with great vision in both providing a level of funding that is appropriate for attacking the firmware validation problem and encouraging academia to develop collaborative, complementary teams."

– Moshe Vardi, Rice University

Universal Parallel Computing Research Centers: Defining the Next Iteration of Moore's Law

Intel and Microsoft jointly created the Universal Parallel Computing Research Center (UPCRC) program. UPCRC illustrates some of the features of an ideal ARO program: a clear research goal and agenda, the potential for significant strategic impact on Intel and the industry, a long-range research horizon, a multi-year funding commitment, and significant Intel engagement and collaboration.

The ARO awarded grants to academic teams from the University of California, Berkeley, and the University of Illinois at Urbana-Champaign to explore forward-looking techniques for simplified parallel programming that take advantage of today's multi-core processors. The multi-year funding gave them the freedom to immerse themselves in this research area and the opportunity to collaborate with some of the sharpest researchers from Intel and Microsoft.

In just three years, these joint academic-industry teams have produced groundbreaking results that are influencing the strategic directions and product offerings of Intel and Microsoft. In addition, their success spurred the University of California Discovery Grant program and others to make follow-on funding available to the universities. This research has also had a broader impact, with multiple organizations building on the parallelism curriculum that the centers developed.

For Intel, Microsoft, and our academic partners, this program represents how the industry and academia can work together to make the technologies of tomorrow closer to reality today.