

Carnegie Mellon

CyLab

CONFIDENCE FOR A NETWORKED WORLD



CyLab harnesses

CyLab's Vital Mission

CyLab is...

- A bold and visionary effort, which establishes public-private partnerships to develop new technologies for measurable, secure, available, trustworthy, and sustainable computing and communications systems as well as to educate individuals at all levels.
- A dynamic matrix, in which great works are accomplished, great minds come together, and great careers are launched.
- A vital resource in the effort to address cyber vulnerabilities that threaten national and economic security.
- A world leader in both technological research and the education of information assurance professionals.

CyLab harnesses the future to secure the present.

Bold Cross Cutting Research Thrusts

Trustworthy Computing Platforms & Devices

Next Generation Secure & Available Networks

Mobility

Security of Cyber-Physical Systems

Secure Home Computing

Survivable Distributed Systems & Outsourced Services

Privacy Protection

Threat Analysis & Modeling

Software Security

Formal Methods

Cryptography

Usable Security & Privacy

Next-Generation Threat Prediction & Response

Business Risk Analysis & Economic Implications

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Unprecedented Challenges

In the decades since the dawn of the Information Age, an era of unparalleled opportunity has unfolded. Its signatures are all around us. From the critical infrastructure that delivers services to hundreds of millions of people to the small handheld smart phone that enables a single individual to run a business, keep in touch with loved ones, and enjoy a personalized selection of music and cinema anywhere, anytime.

But the Information Age not only offers unparalleled opportunities, it also presents unprecedented challenges. For example, the nature of risk, security and privacy have changed in compelling ways. Risk is no longer easily reducible to a set of actuarial tables; security is no longer a simple matter of guards, guns and gates (whether digital, physical or both), and privacy is no longer something that can be safely assumed, it is something that must be vigorously pursued.

Carnegie Mellon's CyLab is one of the world's premier research centers in cyber security, privacy, and availability. CyLab is at the forefront of research into how to meet these unprecedented challenges. CyLab's strategy integrates research and development (R&D) with education to build capacity in three essential areas:

- **Technology Capacity:** Pursuing an aggressive R&D agenda that integrates technology, business, and policy.
- **Personnel Capacity:** Educating professionals in Security Technologies, Business, and Policy, and raising Security Awareness among cyber-citizens of all ages.
- **Industrial Capacity:** Transitioning technology to small, medium and large companies, and creating start-ups.

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Inside CyLab

Carnegie Mellon CyLab's unique cross-disciplinary approach draws on expertise in management and policy, economics, and psychology, as well as software engineering, secure systems design, networking, and cryptography, to develop holistic strategies and solutions for some of the most compelling cyber challenges of the 21st Century. Building on more than two decades of Carnegie Mellon leadership in Information Technology, CyLab is a university-wide initiative that involves over fifty faculty members and one hundred graduate students from six different departments. Through their numerous technology transfer success stories, CyLab's researchers are not only helping to shape the future of cyber security, privacy, and availability, they are also significantly impacting the current state of all three.

Here is a glimpse into the dynamic matrix of CyLab's resource-rich environment:



CyLab Mobility Research Center (MRC): Based at Carnegie Mellon's Silicon Valley campus in NASA Research Park, CyLab MRC is a bi-coastal academic research program, collaborating with leading companies on the future of computing.



CyLab Biometrics Center: Our world-class multi-modal Biometrics program researches critical challenges such as 3-D Face Reconstruction, 2D Pose Correction and 2D Facial Landmark Detection.



CyLab Usable Privacy and Security Laboratory (CUPS): CUPS brings together researchers working on diverse projects to both understand and improve the usability of privacy and security software and systems.

CyLab's impact is deepened and expanded by several closely associated programs:



Information Networking Institute (INI): INI offers professional graduate degree programs in Information Networking, Information Security, and Information Technology that are forged from an exceptional fusion of technologies, economics and policies.



Bi-Coastal and Global Campuses: Students in Silicon Valley, Greece, Portugal, Taiwan and Japan are taught remotely, via videoconferencing, as well as on-site, by faculty affiliated with INI, Engineering and Public Policy (EPP) and Electrical and Computer Engineering (ECE).



MySecureCyberspace®: In response to the National Strategy to Secure Cyberspace, CyLab and INI developed www.mysecurecyberspace.com to raise "cyber awareness" in Internet users of all ages through a portal, game and curriculum.



CERT/CC: CyLab is closely affiliated with the CERT Coordination Center (CERT/CC), which focuses on identifying and addressing existing and potential threats, coordinating incident response world-wide.

the future

Unparalleled Opportunities

CyLab partners in business and government avail themselves of a plethora of benefits: some tangible, some intangible, some quantifiable, and some priceless.

The foundation of CyLab partnership is articulated in the “Four R’s”—Research, Recruitment, Return on Investment, and Reputation:

- **Research:** Partners have facilitated access to CyLab faculty and may be able to conduct collaborative research resulting in technology transfers.
- **Recruitment:** Closeness with CyLab offers an enhanced opportunity to recruit some of the world’s most gifted and highly educated graduate students.
- **Return on Investment (ROI):** Partners can potentially realize ROI through cost-savings in terms of research or recruitment, or commercial success due to technology transfers. And, of course, the ROI for partnering with CyLab is immediate.
- **Reputation:** Association with CyLab in the market place of ideas is one of the most powerful of the many benefits of partnership. Our partners are highlighted on our Web site, at our events, and in our promotional materials.

Other benefits of partnership with CyLab include:

- Access to CyLab events: e.g., annual meetings, recruitment days, webinars, and other offerings.
- Access to CyLab publications: e.g., quarterly newsletters, annual studies, technical reports, and industry trends analysis.
- Access to CyLab Partners-Only Web portal.
- Opportunity for sponsorship of INI graduate students, naming of fellowships, specifying masters-level group projects.
- Education-related benefits: e.g., discounted rates for INI graduate education offerings, and reduced prices on training courses offered by CERT.



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Carnegie Mellon University does not discriminate and Carnegie Mellon University is required not to discriminate in admission, employment, or administration of its programs or activities on the basis of race, color, national origin, sex or handicap in violation of Title VI of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973 or other federal, state, or local laws or executive orders.

In addition, Carnegie Mellon University does not discriminate in admission, employment or administration of its programs on the basis of religion, creed, ancestry, belief, age, veteran status, sexual orientation or gender identity. Carnegie Mellon does not discriminate in violation of federal, state, or local laws or executive orders. However, in the judgment of the Carnegie Mellon Human Relations Commission, the Presidential Executive Order directing the Department of Defense to follow a policy of, "Don't ask, don't tell, don't pursue," excludes openly gay, lesbian and bisexual students from receiving ROTC scholarships or serving in the military. Nevertheless, all ROTC classes at Carnegie Mellon University are available to all students.

Inquiries concerning application of these statements should be directed to the Provost, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412-268-6684 or the Vice President for Enrollment, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412-268-2056.

Carnegie Mellon University publishes an annual campus security report describing the university's security, alcohol and drug, and sexual assault policies and containing statistics about the number and type of crimes committed on the campus during the preceding three years. You can obtain a copy by contacting the Carnegie Mellon Police Department at 412-268-2323. Obtain general information about Carnegie Mellon University by calling 412-268-2000.

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