



## UO/ETIC Success Story

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Beginning in 1998, ETIC invested in faculty hires, outreach programs and provided “start-up” investments for three graduate internship programs offered by the UO’s **Materials Science Institute**. These investments have resulted in dramatic returns in:

**Research productivity** - tripling the external funding of the 16 MSI faculty from \$2,800,000 in 1998 to over \$8,800,000 in 2006.

**Graduate degrees awarded** - the UO is currently fifth nationally in the number of Master’s Degrees awarded in Chemistry - between Chicago and Columbia - according to Chemical and Engineering News.

**K-12 education** - MSI GK-12 Fellows have delivered embedded professional development to teachers and enhanced inquiry based science instruction for students. Over 30 schools in 14 school districts (Madras, Redmond, Junction City, Creswell, Sisters, Bend, etc.), 135 teachers and over 3000 K-12 students were impacted.

**Master’s Industrial Internship Programs** – these unique programs create a bridge from academia to technology industries by pairing top graduate students with 9-month internships in over 40 Oregon companies. Since its inception in 1998 over 150 students have received Master of Science degrees and started their professional careers in Oregon.



The **Semiconductor Device Processing** internship prepares engineers, physicists and chemists to meet the challenges of the rapidly evolving semiconductor industry. The program introduces fundamental concepts and processes used in the industry and trains students to be more effective problem solvers. Interns are placed in ~10 companies located in the Eugene-Springfield, Portland and Bend metropolitan areas.

The **Polymer and Coatings** internship responds to the fact that “nearly 70 percent of all chemists work with polymers,” according to UO Chemistry Professor David Tyler, who directs the polymer program. Student interns have worked on shoe soles at Nike, paint manufacturing, drug-delivery systems such as pharmaceutical patches, and the wood products industry across the state.





When the faculty of UO's **Computer and Information Science (CIS)** department discussed future strategies in 2000, they identified networking and distributed informatics as being cornerstones to the future of information technology. These areas are particularly important as all forms of communication are rapidly converging: telephone calls are being made over the internet; cable TV companies are providing internet service and broadcasting digitally; and even cellular telephones are being woven into the fabric of the internet. They are also areas in which Oregon's private sector has existing strengths. CIS has successfully recruited three stellar young researchers in these strategic areas from corporations in Silicon Valley and leading research institutions.

Professor Jun Li was recently awarded a prestigious five-year, \$400,000 [National Science Foundation](#) CAREER award to support his research project: A Behavior-Based Framework for Detecting Internet Worms. Prof. Li and his research group will investigate causality and payload-independent similarity of worm connections, their destination visiting patterns as compared to normal connections, and their continuity as a worm spreads, with the consideration that certain legitimate connections may appear worm-like and that smart worms can attempt to hide themselves.

This work represents a critical step towards preventing the severe economic and social disruption that internet worms can cause. The Faculty Early Career Development (CAREER) Program is a highly competitive program that recognizes and supports the early career-development activities of teacher-scholars who are poised to make fundamental contributions in both research and education.



Dr. Li is director of the [Network Security Research Lab](#) and is currently supported by earlier grants from the National Science Foundation and Intel Corporation for research on Internet Routing Forensics and Worm Defense.

