



Mona Wan joined OTL June 15 as a biotechnology Licensing Associate, replacing Amy Porter, who left in February.

Mona Wan Joins OTL

By Eric Grunwald

OTL has found its newest Licensing Associate in its own backyard, hiring Mona Wan, a 1992 graduate of the Stanford Business School, to fill one of two biotechnology licensing positions.

Wan, an Oakland native, holds bachelor's and master's degrees in chemical engineering from MIT and Stanford and has worked in industry for a number of years.

Wan says her best experience was her four years at Alza Corporation, a Palo Alto company specializing in drug delivery systems. There she led a project to develop a bio-erodable polymer. It was also there that she realized she liked management and decided to get an MBA.

Wan was looking for a job in her field of interest--marketing for a medical device company--when she heard about the position at OTL.

She's excited about the turn of events, though, explaining, "It will be interesting to see the latest technologies coming out and also be involved in doing the deals. I plan to learn a lot."

As for taking a job on campus, she says, "It's a little strange. I know the campus pretty well, but I didn't even know this office existed!" OTL is certainly glad she found out. ★

OTL Licenses Interactive Videodisks for Education

By Eric Grunwald

Stanford has licensed The Interactive Courtroom™, an innovative series of interactive videodisks developed at the Stanford Law School, to the CLE Group, a start-up company in nearby Menlo Park. Licensing Associate Chris Somogyi orchestrated the deal.

The video lessons teach students effective legal skills and tactics by allowing them to play the role of litigator in situations in which legal rules and ethics are challenged.

Using an IBM computer, a laser disc player, and a television monitor, the student follows a scenario and raises objections by pressing a computer key. A judge sustains or overrules the objections, and an explanation of the ruling, along with the pertinent legal rule, appears on the computer screen.

The videodisk series was created by Tim Hallahan, Director of the Stanford Law School Interactive Video Project, in conjunction with the Continuing Education of the Bar of the University of California.

David Arfin, a 1991 graduate of the Stanford Business School and president of the CLE Group, learned of the disks at a series of forums Somogyi held on the Stanford campus to discuss

Please see CLE Group, next page

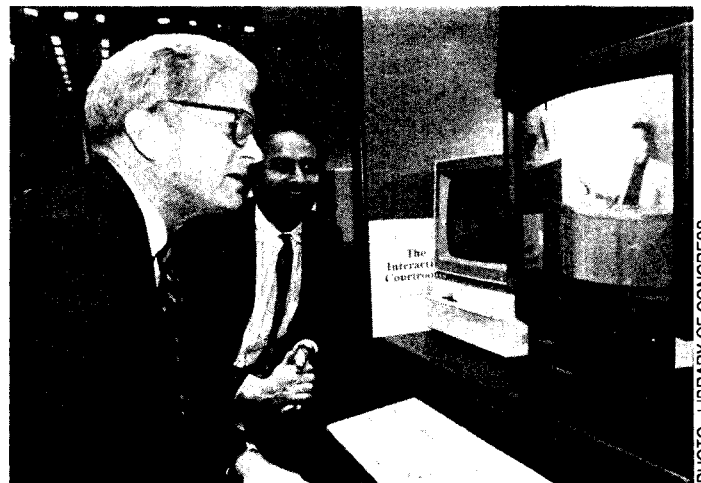


PHOTO: LIBRARY OF CONGRESS

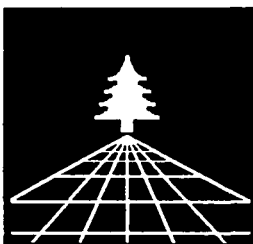
David Arfin, president of the CLE Group, demonstrates The Interactive Courtroom, a series of educational videodisks developed at the Stanford Law School, for James Billington, Librarian of Congress, at the National Demonstration Lab for Interactive Technologies at the Library of Congress in Washington, D.C., earlier this year.

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**Stanford University
BRAINSTORM**

Eric Grunwald, Editor

BRAINSTORM offers the latest licensing news from Stanford's Office of Technology Licensing (OTL), including licensing deals, inventors and inventions, events and policies having an impact on licensing, and other items of interest to the licensing community.

OTL's services are available to any Stanford faculty, students and staff who invent technologies which may benefit the public or be of commercial value.

To find out about a specific technology, or to submit one of your own, contact us at:

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PHOTO: CLE GROUP



Senator Paul Simon of Illinois visits with David Arfin at the Library of Congress. Says Simon, "I know a lot of lawyers who could use this kind of training."

CLE Group

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the many multi-media products being developed here.

Arfin says he had a keen interest in interactive multi-media "because of the power it brings to learning." He explains, "The combination of video and text gives the opportunity to comprehend faster, better, in a multi-dimensional way."

Arfin describes the licensing deal as the meshing of complementary goals. "Chris's vision was to create an organization that would let the multi-media authors concentrate on development and still get their products to market," Arfin says, "while my interest was to find people who had developed first-rate products and help bring them to market."

"OTL played the critical role [in the deal]," he continues, "and my hat goes off to Chris Somogyi for having a vision and the ability to carry through this vision." Arfin adds that "OTL is well positioned to [play that role] over and over again."

Somogyi also considers the license a great success: "We identified an entrepreneur, nourished the relationship between him and the inventor, and provided encouragement and support."

"We were active participants in the formation of this company," he continues, "which, at the time, was the only viable vehicle for commercializing these products."

Already a dozen organizations, including the Department of Justice, major law firms and law schools, and a high school moot court program, are using the discs.

Arfin says the CLE Group hopes to market other educational multi-media products developed at Stanford. "We want to be the home-grown multi-media distributor for Stanford," he says. ♣

Stanford Studies Its Impact on Silicon Valley

By Leonard Adgeron

What role does Stanford play in the economic fortunes of Silicon Valley and the rest of the country?

At a time when research dollars are shrinking and university research programs are under intense government scrutiny, a few people at Stanford want to answer that question quantitatively.

To that end, Stanford Professors William Miller and Robert Keeley and OTL Director Kathy Ku have sent a questionnaire to a sampling of local Stanford alumni to learn about their roles in the formation of new businesses.

The two-page questionnaire asks alumni whether they have been involved in the formation of a new business and, if so, requests details about the endeavor.

It is hoped that the results of the survey will be comparable to those of a 1989 study at the Massachusetts Institute of Technology (MIT). The study revealed that MIT alumni had established some 636 companies in Massachusetts, accounting for 300,000 jobs and more than \$10 billion in annual income for Massachusetts residents.

"There has been such a focus on research universities and their role in the economy," says Kathy Ku, "that we can't be ivory towerish and assume people know what Stanford has done for the community."

"People have become aware of the importance of new companies to the creation of new jobs," adds Robert Keeley, an Associate Professor of Industrial Engineering. "There are about 30,000 alumni in the Bay Area, and it's likely that many of them have participated in forming a business of some kind."

William Miller, professor of both computer science and business management, sees a two-fold goal for the survey: "We hope to do a report that lists the companies in this area and to get some insight into the mechanisms for technology transfer — what does and doesn't work."

Miller adds that it would be premature to speculate how this information might impact Stanford policies.

Anthony Leone, Ph.D., is managing the project and hopes to have the results by the end of the summer. ♣

OPINION

Benefits From Stanford Ignored in Controversy

The following opinion was written by Senior Licensing Associate Hans Wiesendanger and appeared in the Stanford Daily and Campus Report.

The Stanford indirect cost controversy has centered on finding fault with Stanford's use of government research monies. The media had a field day and saw no need to put the issue in perspective by looking at the U.S. Government's direct benefits from its investment in Stanford.

Aside from the fact that without Stanford we probably wouldn't have a Silicon Valley and therefore might have had to fight the Gulf War in the trenches with great losses to our military forces, the Government has greatly benefited from a direct monetary return on its investment in the form of taxes resulting from new products, companies and employment generated by Stanford research.

First, let's look at Stanford technology licensed to industry. The Office of Technology Licensing's annual royalty income is over \$25 million. If the average royalty rate is assumed to be a mere 1% (far lower than the real average), the corresponding product sales (on which royalties are calculated) amount to \$2.5 billion per year.

Dividing this figure by an average of \$100,000 in sales per employee, we get at least 25,000 employees paying taxes on their income. This translates into at least \$50 million per year in business taxes and at least another \$50 million in employee income taxes.

Thus, out of its annual research investment at Stanford of around \$300 million, the government recovers at least one-third on formally licensed Stanford technology alone.

Add to this taxes from businesses formed as spinoffs from Stanford. We know of well over 100 such firms and estimate they employ some 200,000 people and have annual sales in excess of \$20 billion (Hewlett-Packard, Varian and Sun Microsystems alone have \$16 billion sales and 155,000 employees).

Using the above ratios, this translates into at least \$500 million per year in business taxes and at least \$400 million in their employees' personal taxes.

In short, aside from any other benefits, the government recovers several times its investment in direct tax income alone. If the government wanted to act rationally, then, it would have to look at Stanford as a proverbial goose that lays golden eggs rather than one to be carved up and eaten. It is time for Stanford to get that message across. ♣



PATENT PRIMER

To be patentable, an invention must be:

- new
- useful
- nonobvious

To patent in the United States, an application must be filed within one year after the first publication describing the invention. To patent in most other countries, an application must be filed *before* publication. One *can* patent and still publish freely.

NOTE: A federal court ruled recently that a *grant proposal* may be considered a publication and/or prior art for a future patent application. This is not usually a problem, since proposals don't contain the actual findings of the research, which are typically what constitute a patent. The best way to avoid potential complications, though, is to indicate (i.e., on the SU-42) which parts of your proposal are proprietary and should be kept confidential by the sponsoring agency.

THE FAR SIDE

By GARY LARSON



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Before paper and scissors

INVENTOR SPOTLIGHT

John Chowning: No Static At All, Just Good "Karma"

A Stanford graduate student studying music in the 1960's founds a research center, the name of which is pronounced "karma."

Funding for the center comes from royalties on a computer algorithm he develops which in the 1980's becomes the basis for the popular Yamaha DX-7 synthesizer.

Finally, he uses the technology to compose modern classical music now available on compact disc.

Sound too far out to be true? Maybe, but after a few minutes with Professor John Chowning, director and co-founder of Stanford's Center for Computer Research on Music and Acoustics (CCRMA) and the Osgood Hooker Chair for the Fine Arts, none of this seems too hard to believe.

A genial, soft-spoken man, Chowning's gaze suggests a deep intelligence, his manner a quiet confidence.

Born in Salem, New Jersey, Chowning earned an undergraduate degree in music and composition. He then went to Paris to study under famed composer Nadia Boulanger. Chowning finally came to Stanford in 1962 for his Ph.D.

After turning from student to teacher in 1966, Chowning also turned once again to his long-time interest in electronic music.

Having read of research on com-

puter music by Max Mathews at Bell Labs (now at CCRMA) and Leland Smith at Stanford, he managed to get time on one of the computer science department's mainframes.

There ("mostly late nights and weekends," he recalls) Chowning experimented with various algorithms to gen-



Professor John Chowning in his laboratory at CCRMA. Behind him (partially hidden) is the Yamaha DX-7 synthesizer, which utilizes his "FM synthesis" algorithm, OTL's second largest royalty generator.

erate new and different sounds.

It was one of these algorithms that led Chowning to what he calls an "ear discovery": modulating a sinusoidal wave of one frequency with another of differing frequency—the basic science of FM radio—produced completely natural sounding tones.

"FM synthesis", as the invention is now known, was born.

Realizing the invention's commercial potential, Chowning came immedi-

ately to OTL, which had licensed one of his previous inventions. "I'm glad I turned it over to OTL," Chowning says, explaining, "I was not interested in spending my time doing patenting and licensing."

Yamaha, which licensed FM synthesis in 1975 and came out with the DX-7 in 1983, now puts the technology in the SY-55 and SY-77 (the DX-7's successors), electronic organs, and computer chips which are sold to other companies for their products, such as Casio for its electronic keyboards.

Chowning, meanwhile, still occasionally finds time to pursue his first love, composing, and some of his music can be found at your local record store. "Right behind the big Chopin section there might be one little slot," he says.

Most of Chowning's time, though, is divided between

teaching and the administration of CCRMA. Founded in 1975 by Chowning and three others, CCRMA researches new ways of making music and sounds.

But despite all his successes, Chowning maintains a modest bearing. He insists, for example, that FM synthesis "was something my ear tripped over."

And as to where it's led him, he muses, "In retrospect, one is amazed at the consequences of serendipity."

We at OTL certainly are. ♣

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