STANFORD TECHNOLOGY
BRAINSTORM
THE NEWSLETTER OF STANFORD UNIVERSITY'S *OFFICE OF TECHNOLOGY LICENSING (OTL)*

VOLUME 10, NUMBER 2
SPRING 2001

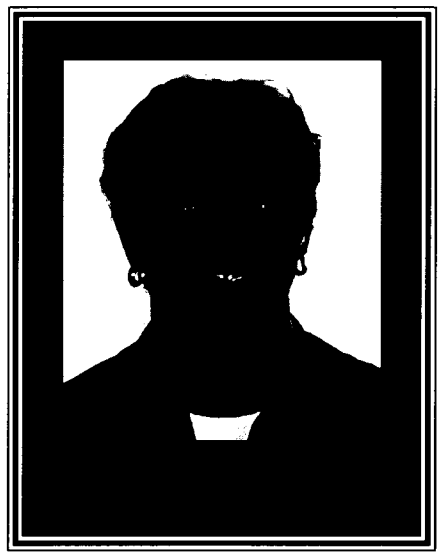
INSIDE THIS ISSUE

IF = Inside Flap
OF = Outside Flap

OTL
OFFICE OF TECHNOLOGY LICENSING
STANFORD UNIVERSITY

ICO: Same Mission, New Manager

Sally O'Neil has been named the new Manager of Industrial Contracts at Stanford's Industrial Contracts Office (ICO). She will meet the University's contracting needs by negotiating research agreements with industry and, more generally, facilitating new relationships with industry and within Stanford.



Originally from New Jersey, Sally was educated at Oberlin College. She then worked for a year at Ohio State University as a Management Analyst. Sally continued her education at the University of Chicago, where she earned a Master of Arts in Teaching, with English honors. She subsequently moved to the Boston area, where she taught high school English for several years.

Sally's first taste of Stanford life came during college, when she did an independent study project at Stanford. The lure of the Bay Area was strong, and she moved here in 1978, after driving cross-country.

With a desire to move from teaching writing to improving

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21st Century Licensing: Ready to Sign?

You've just completed a licensing transaction with a leading US research institution. Whether you are a start-up company in-licensing your founding technology or a pharmaceutical giant licensing a research tool that will enable you to more efficiently discover the next disease-crushing therapeutic, we as university technology managers hope you received a license that meets your needs.

Exclusive licenses, especially those for founding technologies and other revolutionary innovations often require license agreements bearing terms as novel as the inventions which they embody. But technologies or media that are more evolutionary and non-exclusively licensed, such as research tools or software, often lend themselves well to more standardized agreements. The need for transaction-efficient licensing is especially evident within the biotechnology and pharmaceutical industries. Because of the extreme complexity of biological systems, and limited understanding of their physiology, biotech and pharma companies often have to in-license many technologies and tools to create a successful product. In the course of researching and developing a product, a company often discovers the relevance and value of another institutions' intellectual property (IP), and they license such a technology to commercialize their product.

If we as university licensing officers and corporate licensing professionals can streamline the licensing process, we have more time to deal with the (unfortunately, often many) piles of project-related

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STANFORD UNIVERSITY

STANFORD TECHNOLOGY *BRAINSTORM*

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Stanford Technology BRAINSTORM is published quarterly to provide information about OTL and general information of interest to the licensing community, both within and outside Stanford.

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

To learn about a specific technology or to disclose one of your own, contact us by any of the above means.

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her writing through daily practice, Sally continued her education at the University of California, Berkeley, where she earned a Master of Journalism, specializing in business news. She became a business reporter and then editor at the former Times Tribune in Palo Alto, writing about Silicon Valley business during the first wave of the personal computing industry. During that pioneering era, she interviewed the founders of what are now some of Silicon Valley's giants, including Intel Corp., Apple Computer, and 3 Com Corp. In 1985, Sally became a business editor at the Examiner newspaper in San Francisco.

Sally then started her family of three children. She later began working as an editor at the PriceWaterhouse Technology Centre in Menlo Park, publishing a series of books on a wide range of computer-related technologies.

Seeking to become an integral part of the technology she had long written about, Sally earned a J.D. at the Santa Clara University School of Law, where she focused on business and high tech law. After becoming a member of the California State Bar in 1999, she joined a small intellectual property law firm in Palo Alto as a litigator. She plans to use her knowledge of what can go wrong with contracts to negotiate research agreements at the University, and in so doing, contribute both to Stanford's and Silicon Valley's vast supply of inventors and innovation.

Completing the ICO team, Sally joins ICO Contracts Associates Sandra Bradford and Monique Schareck, who provide contract negotiation for Stanford researchers engaged in industry sponsored research, collaborations, and material transfers. Both Sandra and Monique have several years of experience working in academic research settings.

No stranger to the University, Sandra first worked at OTL for eight years in positions including licensing assistant and assistant to the Director. She then worked for a brief stint in industry before returning to the farm. Prior to ICO's inception, Sandra handled material transfer agreements for the University. Sandra is a '89 Stanford graduate with a BA in Human Biology and a concentration in Hospital Administration.

Monique, a Canadian citizen, has a Master's degree in Health Care Administration from the University of British Columbia. She has several years of work experience in university settings, including the administration of clinical trials. In her free time, Monique enjoys running and plays ice hockey, and she can often be seen in the mornings cycling in to her office at ICO.

Established in the fall of 1997 and housed within OTL, ICO is an offshoot of OTL and OSR (the Office of Sponsored Research). Before ICO's inception, industrial contracts were handled by OSR, which would traditionally hand off the intellectual property component of the contracts to OTL.

The creation and placement of ICO within OTL streamlined the industrial contracts negotiation process, allowing ICO and OTL to synergize on industy-related issues and enabling the ICO team to draw upon the licensing experience of OTL in negotiating intellectual property and licensing terms with industry. OSR continues to handle clinical trial agreements and government and non-profit grants and contracts.

The ICO team focuses on facilitating interactions between Stanford and industry by negotiating agreements that foster long-term business relationships with sponsor-companies.

Researchers interested in working with industry, or companies interested in working with University researchers are welcome to contact ICO for more information about the industrial contracts process, agreement terms, and examples of sponsored research at Stanford. Feel free to call us at (650) 723-0651 or visit the ICO website at **www.stanford.edu/group/ICO**.

A Selection of Licenses Granted by OTL in the Last Quarter

S94-021	"Microchip Radio"	Cell, paging, wireless PDA's	RFco	Field Exclusive
S95-157	"Use of N-acetylcysteine (NAC) for AIDS and other indications"	NAC for disease treatment	BioAdvantex	Exclusive
S96-103	"Isozyme-Specific Agonist of Protein Kinase C Epsilon"	Treatment of diseases related to kinase C epsilon	BioImage	Option
S00-062	"Manufacturing low-cost VCSEL"	Lasers for communications	OptiComp	Non-exclusive
S98-181	"Restoring Articular Cartilage Matrix"	Growth of cartilage	Histogenics	Field Exclusive
S98-199	"Enhanced In Vitro Synthesis"	In vitro protein synthesis	Roche	Exclusive
S99-216	"Micromachined Two Dimensional Array Droplet Ejectors"	Biological, biotechnological devices	Adeptient	Field Exclusive

Director's Perspective: Forming Lasting Relationships
by Katharine Ku

I am often asked to talk about Stanford's policies and practices with respect to technology transfer, but I think it is almost more important that our diverse university and industry constituents understand OTL's **philosophy** toward our interactions with industry.

One of OTL's most important philosophies is that the licensing agreement is just the beginning of a **long term relationship** with a licensee-company. A successful licensing relationship can last for 20 years or more, with many unforeseen events and circumstances occurring during that time period. It is important to establish a relationship based on mutual trust and respect that encourages continuing communication and permits changes to the license agreement as necessary. It is integral for both OTL and the licensee-company to have the confidence that we will be able to work out differences when they occur because the agreement itself cannot predict and foresee the future. For OTL, the license agreement reflects an important, continuing relationship, not just a legal contract.

OTL recognizes the licensing relationship must be mutually beneficial. We are most concerned about the diligent development of the technology, thus we expect our exclusive licensees to be passionate, committed and diligent about bringing a product to the marketplace.

OTL, and Stanford, have excellent relationships with many companies. We look forward to expanding existing ones and forging new partnerships. Come visit our web site, **http://otl.stanford.edu** to learn more about us.

Ready-to-Sign... Continued from page 1

papers that elegantly decorate our desks. With this thought in mind, OTL now utilizes its World Wide Web site as a nexus for transaction-efficient "Ready to Sign" (RtS) agreements. If companies choose to utilize a RtS Agreement, they receive the following benefits.

RtS Benefits:
- More time-efficient: just download, sign and send the RtS agreement with the issue fee payment attached. This is especially beneficial for very busy licensing professionals or for companies who need immediate access to a technology.
- Reasonably priced: RtS agreements are priced below the negotiated-agreement price for the same technology.
- Optional: if you need to discuss the license terms or negotiate portions of the agreement, OTL treats it just like any other negotiated agreement, and it no longer has RtS terms.

Numerous "Ready to Sign" agreements are on OTL's website at **http://otl.stanford.edu** under "For Industry," then "Resources." Currently, OTL offers the following technologies under RtS agreements, with more on the way:

Software:
- Microarray data analysis: two software programs for data significance analysis
- SRP-3: authentication protocol for password protection across insecure networks (see page 4 for more information)
- GENSCAN, EMOTIF, EMATRIX: several suites of widely-licensed bioinformatics programs
- ERGO CD: ergonomics software for non- and for-profit institutionals' workforce health improvement
- BBP TRAINING: a blood borne pathogen safety training program; and
- DHPLC OPTIMIZATION: analysis of single nucleotide polymorphisms (SNPs)

Engineering:
- Telecommunications: patent portfolio of new DSL technologies
- Lasers: blue source laser patent

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Benefiting from Partnership in Medical Imaging: A Special Initiative between GE and Stanford

The rich relationship between Stanford University and General Electric Medical Systems Division ("GEMS") dates from the 1970s. When General Electric decided to enter the medical imaging business, it selected a small number of universities to partner with in advanced research. One such intiative was the Stanford program, led by Professor Albert Macovski (an early pioneer in color television at RCA and then one of the most prolific inventors ever at SRI before coming to Stanford). Thus began a long and mutually beneficial partnering program that continues today, where GE provides research funding support and state-of-the-art imaging systems for Stanford's research programs.

In 1990, representatives from GEMS met with Jon Sandelin of Stanford's OTL to discuss a problem. Under the existing research agreements, the only way GEMS could use a Stanford invention was under a royalty bearing exclusive license, yet many of the inventions were small incremental advances that GE could not utilize if earned royalty payments were required.

The solution was a special agreement with the following characteristics:
1) GEMS would pay Stanford a reasonable annual payment;
2) GEMS would review inventions in medical imaging and select those they believed merited patenting;
3) GEMS would pay all costs related to patenting the select inventions;
4) GEMS would have a royalty free non-exclusive license to such inventions, allowing them to use the inventions in their products;
5) If an invention was actually used in a commercial product, an additional one-time cash payment was made to Stanford;
6) The inventors of the select inventions would share in the inventor's share of the annual payment (and also the one-time cash payment if their invention was actually in one of GE's products); and
7) Stanford obtains a portfolio of patents in medical imaging that can be licensed to other companies.

During the 1990s, computer software gained greater emphasis in implementing new features in medical imaging equipment, so an amendment was made to the agreement to also reward creators of innovative software for their contributions.

Thus, under this initiative each party involved benefits:
(a) The program has resulted in a steady stream of useful invention disclosures in the medical imaging area;
(b) The inventors receive financial return from their invention disclosure (if it is selected by GE for patenting or is software of commercial value), even if the invention is never used;
(c) It has been useful to GE in its product development efforts;
(d) Stanford inventors and Stanford research programs receive royalty income; and
(e) The program has resulted in a sizable portfolio of medical imaging patents that may be a source of future royalty income.

If you have an invention in the medical imaging area you wish to discuss or you would like further information on this unique program, contact Jon Sandelin (**jon.sandelin@stanford.edu** or 650-725-9404).

Innovation in Biomedical Technology

"A view from the trenches" was the underlying theme of "**Patent/Start-Up 101: Innovation & Entrepreneurship in Biomedical Technology**," held recently at Stanford Medical Center's Fairchild Auditorium. An audience composed of Stanford students and faculty as well as engineers and others from the local medical technology industry were exposed to several of the key considerations (and potential pitfalls) for innovators of biomedical technologies. First held in 1998 and co-organized by the Stanford Medical Device Network (MDN) and OTL, "Patent/Start-up 101" is designed as a basic orientation to medical technology development and commercialization.

The significant contributions of Stanford faculty to medical technology innovation was evidenced by three of its luminary faculty participating in a panel session entitled "Voices of Experience." William New, MD, PhD (former Stanford anesthesiologist and inventor of the pulse oximeter) was joined by vascular surgeon Thomas Fogarty, MD (Fogarty Balloon Embolectomy device), and serial entrepreneur, Otolaryngologyst Rodney Perkins, MD (founder of Laserscope, Collagen and ReSound).

To illustrate the process of developing a medical device into a viable product, Electrical Engineering PhD candidate Nick Mourlas and medical resident Asha Nayak, MD, PhD, both Stanford students, posed as an interdisciplinary team with an invention that would assist in the prevention of acute heart attacks. Mourlas and Nayak considered a licensing strategy as well as the start-up pathway for developing their invention. Leading medical device patent attorneys questioned the inventors about the documentation of their invention, the breadth of their claims and the ability to file on and defend their invention relative to existing intellectual property.

The inventors were then presented with a myriad of choices for funding development of their invention. On-stage negotiations between a company interested in licensing the Stanford technology and OTL Director Katharine Ku yielded a term sheet typical of this technology area. The inventors were then presented with several start-up financing options including angel investors, venture capital and a medical technology incubator.

Amidst the excitement of the opening evening of "Patent/Start-Up 101," MDN and OTL jointly awarded the winners of the most recent "**Medical Device Invention Challenge**." This, the third Invention Challenge, was centered around innovation at the medical device / Internet interface. The primary criteria were inventing a technology that provides interaction/interface/communication via the Internet, and significantly improves/facilitates medical diagnosis and/or treatment.

Paul Yock of MDN and Kathy Ku of OTL presented Stanford medical student Jon Bernstein and Stanford medical intern Dan Greenwald, MD each with $2,500 checks. Benstein and Greenwald invented an internet-enabled organization tool that coordinates many aspects of clinical processes, including clinical trials and patient dosage. Further details about the technology will be disclosed after the intellectual property around the invention is secured.

For more information about "Patent/Start-Up 101," or the "Medical Device Invention Challenge" visit the Medical Device Network website **http://mdn.stanford.edu**.

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Tangible Research Property (TRP):
-KO MICE: Ten strains of mouse models; tools for disease research
-GFP: Green Fluorescent Protein in the anti-infective field
-Monoclonal antibodies and cell lines, tools for life sciences research

New RtS Technology - SRP-3: Secure Remote Authentication:
SRP-3 is an authentication protocol that enables secure authentication of passwords across a potentially insecure network. SRP-3 is not dependent on any external security infrastructure, so it can easily replace existing insecure authentication mechanisms. It is designed to withstand all standard active and passive network attacks, including brute-force guessing attacks against a password.

Stanford has a U.S. patent pending for the SRP authentication and key-exchange system. To encourage widespread use of strong cryptographic authentication technologies, efforts are underway to standardize the technology with IETF and IEEE. And Stanford is granting royalty-free licenses for SRP when used in its implicit server authenticating mode, such as implementations based on RFC 2945. To download such a license, access **http://otl.stanford.edu/industry/resources/rts.html**.

Stanford University is also offering non-exclusive licenses in a nondiscriminatory manner for use of SRP in its bi-directional authenticating mode (SRP-Z) under reasonable terms and conditions. To obtain such a license, contact Kirsten Leute at (650) 725-9407 or **kirsten.leute@stanford.edu**.

For more information about SRP, view **http://srp.stanford.edu**

Technology Spotlight: Back in Control

With their ominous size and multi-jointed construction, many large vehicles including two-trailer eighteen wheeler trucks are difficult to navigate. In fact, human drivers alone cannot back up these vehicles; it is impossible for human motor skills to process such a complicated set of actions. The trailers unceasingly jackknife or turn at unintended angles.

However, using a neurointerface, Stanford researchers Bernard Widrow and Marcelo Lamego have developed technology that enables even unskilled drivers to easily accomplish such a complex task.

A neurointerface is a trainable filter based on neural networks that serves as a coupler between a human operator and a nonlinear system that is to be controlled or directed. Widrow and Lamego adapted a neurointerface to be an inverse or an approximate inverse of a nonlinear system in such a way that the response to human control of complex movements closely approximates simple human command input. In this way, it is very easy for a human operator to direct the response of nonlinear systems.

The technology has a variety of applications. In addition to the big rig solution, Widrow and Lamego have developed designs for human control of construction cranes and multi-jointed robot arms. The same principles can also be applied to ease human control of other complex machines, such as aircraft, helicopters, and heavy earth-moving equipment. Further applications for neurointerface technology include surgical navigation or obstacle avoidance systems.

Marcelo Lamego recently received his PhD in Electrical Engineering from Stanford. Bernard Widrow is a long-time professor of Electrical Engineering at Stanford who concentrates his research on adaptive signal processing, adaptive control systems, and adaptive neural networks.

Computer users have benefited directly from the research of the academically accomplished Bernard Widrow. Widrow is a member of the National Academy of Engineering and a pioneer in the field of adaptive filters and neural networks (electronic systems that have the ability to learn and improve their behavior through contact with their environment).

For more information on the neurointerface technology, visit **http://availtech.stanford.edu/Scripts/otl.cgi/docket?docket=99-233** or call Luis Mejia at (650) 723-0651. An online video illustrating the neurointerface can be seen at **http://otl.stanford.edu/tech/spotlight.html**.

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