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STE Update : 03/2008

Northeastern University

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Northeastern

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Higher Learning. Richer Experience.

School of **TECHNOLOGICAL ENTREPRENEURSHIP**

STE Update

March 2008

moving **technology** from **idea** to **reality**

Letter from the Dean

Dear Alumni and Friends,

It's been about six months since my last letter and we have accomplished an amazing amount in that time. Among the significant developments in the school include its first graduating class of Master's students, the addition of a new assistant level tenure track faculty member with a tenure home in the school, a formal joint faculty position with the business school, and the relocation of the school to the Stearns Center on Huntington Avenue.

You will remember from our last update that our first class of graduate students did an outstanding job with their projects. They have all gone off in different directions. One continues to pursue his idea for a software firm, another has gone back to work for the small company he left before entering the STE program, and many others have found positions in firms and are involved with product development.

Since our Master's Program is populated with recent graduates from undergraduate programs, their level of industrial experience has been minimal. This begs the question of the need for experience before one can truly expect to start his/her own company. We expect that founders of web-based companies are likely to be very young, but barring this exception, other technology fields don't seem to offer the same opportunity. During our EntrepreneurshipWeek program last year, many of the panelists when asked remarked that experience in their field was the single most important pre-requisite for their success. Even with our I-cubator program and the hands-on opportunity it affords our students, I think it unlikely that students with minimal industrial experience will be able to start companies right out of school.

We therefore need to prepare students for early career opportunities that will make sense and use their educational background. For these students, a measure of the success of the program will certainly be the ease with which they find employment. Therefore, in August we began to council graduate students so that they could position themselves appropriately and find employment.

We continue to build our program from three perspectives, academic, research and experiential. We are learning and applying our new knowledge to create a great program.



Undergraduate Program

The undergraduate program continues to grow. The spring semester seems to draw the most students, but as you can see in Figure 1, the numbers increase with each new spring semester (yellow bars). The total number of undergraduates participating in the minor is 340. Their distribution among colleges is shown in Figure 2. Clearly, engineering continues to dominate with the second greatest number coming from business.

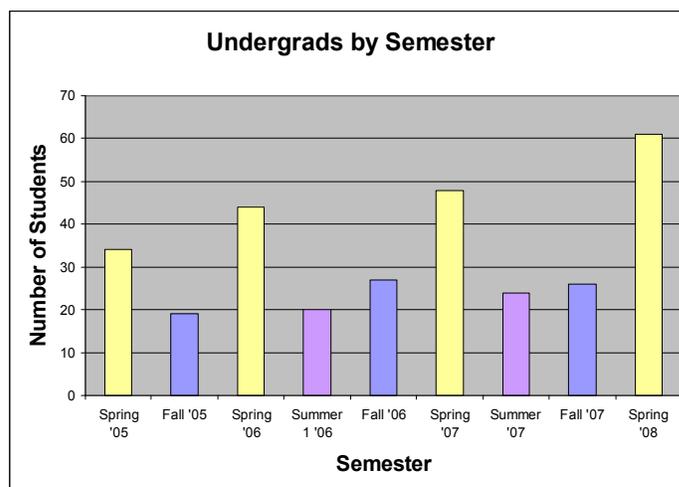


Figure 1. Chart of undergraduate student number enrolled in the minor by semester.

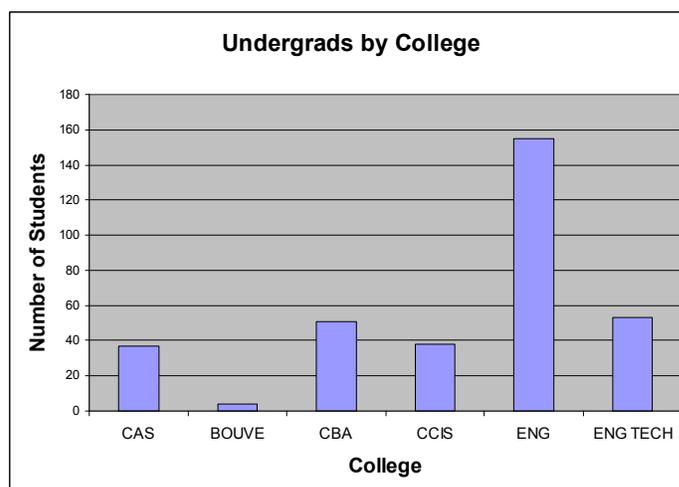


Figure 2. Number of students enrolled in the program since the outset.

Graduate Program

Class of '08

In our last report, we provided some of the demographics for the students entering the graduate program this year. Like our first class (Class of '07), this group of students in general are coming to us right out of an undergraduate program. This means that they have a small amount of industrial experience at best. Instead of asking them to bring ideas with them as we did with the Class of '07, this year we sought out ideas from faculty at Northeastern and from potential industrial sponsors. We accumulated twelve different ideas spanning a number of areas.

All of the ideas came with technology support. In the case of faculty ideas, the laboratory resources and students of that faculty member were committed to the project. Therefore, our students would provide the product management function and the faculty member's students would provide the technology support. In the case of industrial ideas, the sponsoring company would provide the technical resources necessary.

Before the fall semester began, we obtained one paragraph synopses of all the projects and asked students to rank the top four projects according to their interest. We then compiled this information and distributed students among projects. As it turned out, most students were put on their number one choice.

During the fall semester as part of their marketing class, students performed an opportunity assessment of the project to which they were assigned. At the end of the semester, project presentations were evaluated by the faculty and staff. We down selected projects reducing the total number to five. We then reassigned students to projects such that each team had three students.

Now that the spring semester is underway, student teams were assigned to STE staff to help guide their progress on projects. Students were also taught fundamentals of project planning. Each team was instructed to pick a project leader (a position that could alternate during the semester). Project leaders then coordinate internal and external activities and chair meetings.

The projects that remain are:

| Project Name | Description |
|---------------------|--|
| LocallyHeard | An on-line record label wherein major labels, artists and the public can go to communicate and distribute music. Data on listener preferences will be compiled and sold as research products to companies interested in the music market. |
| NUIC | A system security designed to identify threats in real time. This is particularly applicable to the current trend toward virtual networks. |
| AntiFog | A nanotech coating with exceptional performance characteristics for face mask and helmet applications. Initial market could be the military, but the product has broad applicability. |
| Genesis Pro | A 3D photographic process that delivers a statuette. The concept is to put kiosks in amusement parks for kids to take pictures with costumed character players. |
| Bio Chip | The proposed Keck Nano Bio Chip will be; capable of simultaneous measurement of multiple biomarkers with one device, very small in size (can be as small as 100 μm x 100 μm), biocompatible, low cost, implantable or injectable allowing effective in-vivo measurement without the need for sample collection and storage. |

Graduate Curriculum Development

We are planning the introduction of two new graduate level programs next year. The first is an on-line MSTE degree which will be delivered with significant support from the School of Professional and Continuing Studies (SPCS). The target audience for this program is the working entrepreneur who has five to ten years of experience, is on the job, and is settled into his/her life. This individual does not have the



time and/or financial ability to take a year from work and obtain a degree. The on-line program will allow these individuals to work on their own and at a time of day that makes the best sense given their busy schedules. The second is an MS/MBA in Technological Entrepreneurship will be a two year program in concert with the College of Business MBA program. The STE courses provide a small high tech business focus and are supplemented with traditional first year MBA courses which strengthen the STE program with more depth in accounting, financing and marketing. This program will be a two year course of study if taken full time.

Both programs have the potential to significantly increase the revenue generated by the school. In addition, the MS/MBA degree will carry with it the cache of the traditional MBA degree.

I-Cubators and Student Projects

Flowing from Northeastern University's grand tradition and its long history in Experiential Learning, our vision for I-Cubators is a unique experiential component that augments and accompanies our academic program. We are endeavoring to create an environment where students get firsthand entrepreneurial experience with nucleating companies. To accomplish this, we identify faculty who are working on research projects that have commercial potential and who have a desire to see their ideas succeed in the market place. STE staff then work with these faculty and students to move the ideas forward. In many cases entrepreneurs-in-residence, who are looking for a next opportunity, provide additional managerial support to the projects.

We have also engaged local businesses to submit ideas for evaluation by our students. In this case, the contributing firms provide the technical expertise and our students evaluate and assess market opportunity.

The E-Lab plays a significant role in the process. Our graduate and undergraduate students are given access to the E-Lab through an electronic key lock that opens when STE students swipe their student ID cards. Students use the facility to share ideas, work on projects, and study course materials. It builds camaraderie among the STE students and is a place they value. We are indebted to the Kariotis' (George [E'44, Hon'88] and Ellen) for making this possible

through their generous endowment which also provides annual funds for student projects.

Digital Media I-cubator

The Digital Media I-cubator worked on three projects last Fall. The first, EnGame, is a game authoring tool that faculty member and game designer Jay Laird is leading. This project may involve intellectual property that can be patented. A second project was the Response Network, a training and community portal for the nation's emergency responders. STE assisted the company's CEO with his business planning and in making contacts in the Boston-area venture community on his behalf. Finally, with forty students and five faculty in three interdisciplinary classes, the I-cubator is helping organize and develop a unique social network that attracts emerging bands and musicians and college-aged students who love and want to connect with the local music scene. Locally Heard brings these constituencies together and tracks the data associated with the emerging trends in music preferences of the college market. This data will be resold to marketers interested in the market and will provide decision support for music licensors that need music for movies, advertising, electronic games, etc.

Engineering I-cubator

Last semester ended with presentations from the student teams working on our 12 projects. Of those, 4 were being explored by students working in the Engineering I-cubator. These included a project from the Wood's Hole Oceanographic Institute that explored a concept for a new flow sensor and a project borne of a professor from Biology with an idea for a digital maze game. As a result of student work and presentations there was a down select to two projects that the faculty and I-cubator directors deemed most promising. These projects are:

- Server security- an innovative approach for instruction detection is being developed by NU faculty and Ph.D. students.

This project is prototype development phase. A functioning prototype should be developed by summer. Students are doing concept testing with security professionals with the aim to



produce a set of high level requirements by the end of the semester.

- **BIO-sensing chip-** This is a cross-campus, cross-functional project involving nano-technology, biology and pharmacology. This new device has the promise to radically improve the detection of diseases such as cancer.

First pass nano-devices have been produced and devices are being assembled to catheters for animal testing which should begin in June.

The biology department has successfully developed 3-4 bio markers.

Students are working on how to incorporate this device in the medical system work flow. Early conversations with medical professionals has shown strong interest in this project.

Other Projects

We engaged ZCorporation in Burlington, Massachusetts and Agiltron Corporation in Woburn, Massachusetts. Each provided a project that they believe has market potential, but that is not on their current development roadmap.

ZCorporation has a unique rapid prototyping capability based on injet printing which can produce 3D models in color. Our students are investing the market potential 3D photographs (statuettes) taken at theme parks of children and perhaps theme park characters. The students working on this project have created prototypes and are preparing customer visits to test the idea on 'real' people.

At Agiltron, a unique process incorporating nanotechnology was developed in which thin films of antifog coatings can be deposited on windshields, safety masks, sports goggles and the like. These coatings are extremely scratch resistant; a characteristic that we have learned from potential customers is very desirable.

Toward the end of this semester, we are planning a second project review in which faculty, staff and students will see the results from each of the project teams presented in a 10 minute slide presentation. This provides students with the opportunity to pitch

their concepts in a constrained time frame and then defend their ideas and approaches in a subsequent Q&A session.

Staffing

The Shillman Professor

After a concerted effort last year, we were unable to identify a candidate who met all our criteria for the Shillman Professorship. Therefore, after consultation with Robert Shillman [E'68, Hon.'00:Trustee], we decided to begin a new with the hope of identifying a candidate for next September. We clarified the advertisement and resubmitted it to the Chronicles of Higher Education. In addition, we have been contacting experts in the field to help identify target candidates. We then contact these individuals directly to probe for interest in participating in the search.

External Activities

EntreTech Forum

The EntreTech Forum, which was successfully launched in the Fall of '07, comprises a consistent schedule of monthly program-meetings examining issues relating to commercialization of university intellectual property. Alumnus Larry Grumer [E'74, MBA'85] took the lead in creating and organizing the event. The first meeting focusing on Biotechnology was a spectacular success with over 85 audience participants (see www.entrettechforum.org).

Each meeting is formatted with an initial networking session with light food, followed by a keynote address from a renowned expert in the subject area, and ending with a panel discussion and questions. The panels are moderated by a distinguish member of the technical community. The discussion features entrepreneurial and corporate accomplishments in commercialization and technology transfer from universities and incubation at universities and in industry. The subjects of capitalization and deal structure will be included along with presentations of emerging academic research.

The EntreTech Forum meetings are held in the evening in Waltham, MA at the Emerging Enterprise Center. This is located within the Bay Colony Corporate Center at 1000 Winter St., Suite 4000,



North Entrance. On-campus special-event meetings are planned to be held at the new Northeastern University Alumni Center.

The EntreTech Forum is an affiliate of Northeastern University directed by an executive board of business principals, investors, and researchers, many of who are alumni.

The EntreTech Forum has been a major success. We delivered the first event on October 16, 2007. The STE has provided bus service for students to an from Waltham. In the table below, a list of this academic year's events is given.

Table 1. *EntreTech Forum 2007-2008 Season*

| | |
|-------------------|---|
| October 16, 2007 | Biotechnology: Moving the Life Sciences from the Research Lab to Industrial Implementation |
| November 20, 2007 | Clean Power: Tomorrow's Energy on a Low-Carb Diet |
| December 18, 2007 | Nanotechnology: Small Wonders in a Big World |
| January 24, 2008 | Physical and Cyber Terrorism: Combating Terrorism with Technology |
| February 19, 2008 | Communications/Networking: Spinning the Semantic Web |
| March 18, 2008 | Robotics: One Leg Up on the Competition |
| April 15, 2008 | Photonic and Optics: Bright Ideas? At The Speed of Light |
| May 20, 2008 | Government and Private Funding: Sources, Selection, Success |
| June 17, 2008 | Patents, Licensing and Venturing: Collaboration to Commercialization |

Events like this require support to be successful. Two friends of the School of Technological Entrepreneurship step up to support the Forum for which we are very thankful. They are Foley Hoag and Weingarten, Schurgin, Gagnebin and Lebovici. We continue to look for additional sponsors. If you are aware of a company or organization that would be willing to help, please contact the Paul Zavracky at 617-373-2788.

Our Sponsors:



Graduate Seminar Series

Further enriching the experience for our students, the STE initiated in the Fall a series of on-campus seminars presented by Northeastern alumni and friends who have specific entrepreneurial experience. The events occur in the early evening and pizza and soda are served. The speakers share personal experiences with the students. After a one hour presentation, students have the opportunity to question the speaker in an open forum. Subsequent to the open questioning period, students have a one-on-one with the speaker. Attendance has been high and the speakers have been great. The table below lists the topics for the academic year.

Table 2. *Graduate Seminar Series*

| Date | Topic: Seminar Title |
|-----------|--|
| 8-Nov-07 | First 360 Days of a Startup , Yogendra Jain, Founder and CEO of Personica Intellegence, Inc. (www.personica.com) |
| 29-Nov-07 | StreetSmart Entrepreneuring: How good engineers can become great entrepreneurs, Frank Zenie, Chairman of Velquest Corporation (www.velquest.com) |
| 17-Jan-08 | Concept to Company: The Process of Raising and Making Money in the Venture Capital Environment , Jeff McCarthy, GP North Bridge Venture Partners (www.nbvp.com) |
| 21-Feb-08 | "A Technology's Journey: From the Lab to Production," Matthew Micci |
| 20-Mar-08 | "Legal Dos And Don'ts For The Entrepreneur," Tom Durkin, Gesmer Updegrove LLP |
| 21-Apr-08 | Roger Grace |
| 15-May-08 | "Sleep is the New Sex," Eric Shashoua, VP, Global Business Development, Co-Founder, Axon Labs, Inc. |

Global EntrepreneurshipWeek

This year the Kauffman Foundation is promoting the establishment of a Global EntrepreneurshipWeek. You may recall that the STE in concert with the CBA created a full week of events for EntrepreneurshipWeek USA last year (see



<http://www.eweek.neu.edu>). We want to build on that success and create something truly global. We feel Northeastern is well positioned to be a leader in this global event.



Alumni/ae Opportunities

We depend on the support of Northeastern's alumni/ae. Please give some thought to the following areas of interest and need:

- 1) Help identify and direct students to the Master's program.
- 2) We are seeking entrepreneurs between opportunities who may be interested in working with student teams, NU faculty and NU ideas to launch new companies.
- 3) Volunteers for any activity. There is a lot to be done with a very few people. If you would like to be involved, we can certainly find something that will be interesting for you.

Things of Note

To get more information about the STE, visit www.ste.neu.edu.