GEORGIA TECH SAVANNAH

innovation has no boundaries


Allen


Choi


Fathianathan


Mistree


Schaefer

THE WOODRUFF SCHOOL IN SAVANNAH
CLUSTER HIRE IN STRATEGIC ENGINEERING

In 2005, George W. Woodruff School of Mechanical Engineering expanded its academic and research program to the Georgia Tech Savannah Campus. The mission of Georgia Tech Savannah is to create signature programs that complement those established in Atlanta. Accordingly, we seek to further the high-impact, interdisciplinary area of *Strategic Engineering* by implementing a "cluster hire" strategy for up to four tenure-track faculty beginning Fall 2008. In this document we provide background important information for potential candidates for these four positions.

In his recent book, *The World is Flat*, Thomas L. Friedman showcases Georgia Tech's approach to education in the 21st century. "*What the Georgia Tech model recognizes is that the world is increasingly going to be operating off the flat-world platform, with its tools for all kinds of horizontal collaboration*," writes Friedman. According to Friedman, "*Georgia Tech is producing not just more engineers, but the right kind of engineers*". These future engineers will be intellectual leaders that are prepared for success in an era that demands flexibility, creativity, experimentation, and teamwork across traditional boundaries.

In order to respond to globalization and produce the right kind of engineers for the flat world, our focus at the Woodruff School of Mechanical Engineering in Savannah is on developing ***strategic engineers.*** These are *engineers who know how to realize complex engineered systems for changing markets in collaborative, globally distributed environments thereby safeguarding the economic viability of the companies they represent and hence fostering the prosperity of our country*. Such strategic engineers are also:

- collaborators, i.e., engineers who can build global engineering networks;
- leveragers, i.e., engineers who can leverage technology so that one person can do the job of twenty;
- synthesizers, i.e., engineers who can take "A" and "B" to make "C";
- localizers, i.e., engineers who can create a small business locally;
- adaptors, i.e., engineers who can adapt to rapid and large changes;
- inventors who develop "sticky" technology – technology that spawns economic development in the place where it has been invented and yet is used in products that are developed and marketed globally.

This is the rationale for launching the Strategic Engineering Program.

THE STRATEGIC ENGINEERING PROGRAM (SEP)

In partnership with the Technical University of Eindhoven[1] and the Indian Institute of Technology, Kharagpur, India[2] we are in the early stages of creating an International Education and Research Network to

- create an environment for students to learn how to educate themselves to be Strategic Engineers;
- facilitate faculty to contribute to the scholarship of integration and the scholarship of education;
- foster economic development in the Savannah region.

Elements of the SEP include

Transformation Paradigm: "Design" is that which transforms intellectual capital into economic capital (wealth).

Global Education Network Features include design at the core of the engineering curriculum, course content anchored in research findings, competency-based evaluation, and learning through doing

Product Creation Network To facilitate this mode of education the partners have taken steps to organize a Product Creation Network - a joint enterprise between academia and industry to educate Strategic Engineers for tomorrow.

Initial Focus. The realization of products that embody ambient intelligence and the materials that are needed to make these products a reality.

In keeping with the preceding we are committed to developing a new education and research model wherein engineering design (as described above) is at the core of what we do. This construct is illustrated in Figure 1 together with the hiring priorities for Fall 2008.

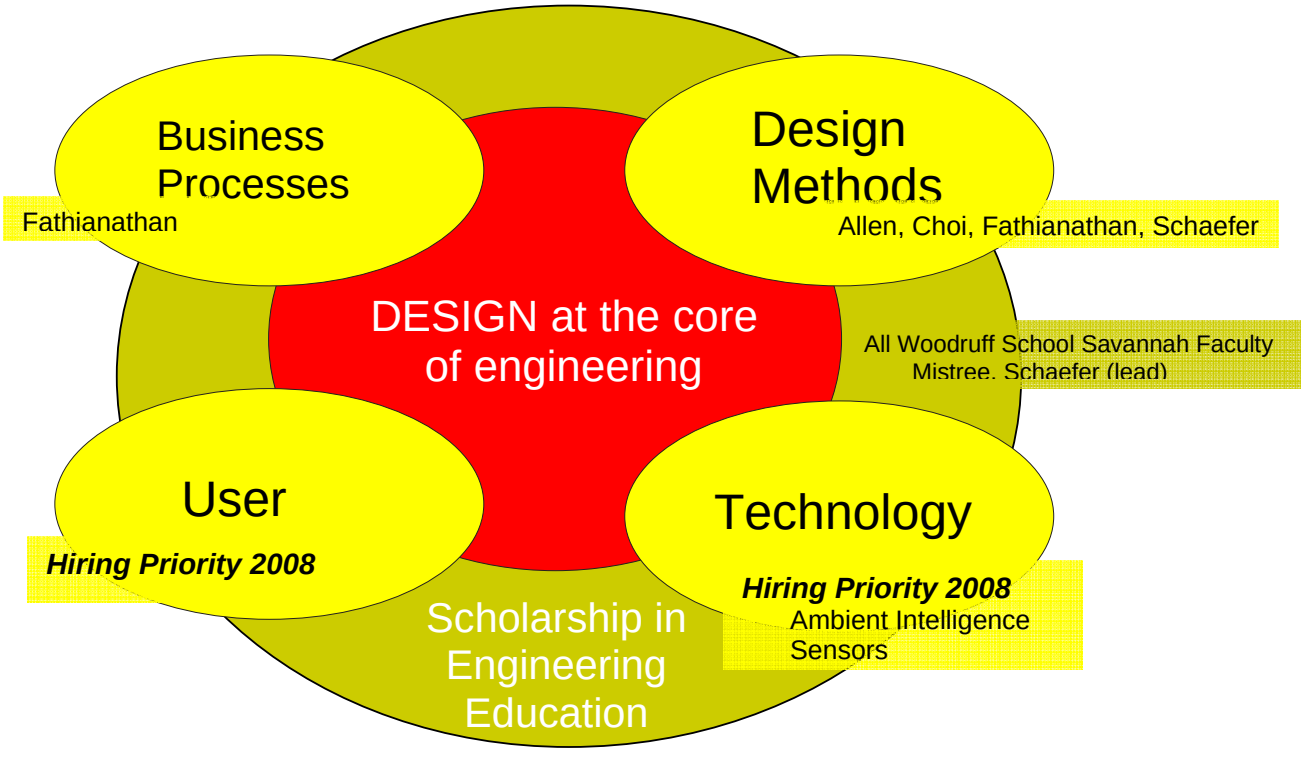

Figure 1: Strategic Engineering – Core Elements

Some related example applications that allow innovating at the interface between disciplinary emphasis

[1] For further information: http://w3.id.tue.nl/en/

[2] For further information: http://www.iitkgp.ac.in/

(e.g., fluid mechanics, materials, heat transfer and manufacturing) and system realization (e.g., design, manufacturing, life-cycle activities) in distributed engineering environments include:

Design methods for complex engineered systems - product families and architectures, the design and analysis of knowledge and information flows. *Example research: investigations that result in simulation-based, distributed engineering of complex engineered systems.*

Technology: Design, analysis, and fabrication aspects of products that employ ambient intelligence (are context aware, adaptive, and anticipatory); embedded sensors, sensor networks that facilitate automated reconfiguration; design of materials that embody and / or facilitate the creation of products that embody ambient intelligence.

Definition ambient intelligence:

http://en.wikipedia.org/wiki/Ambient_intelligence.

Research interest example:

http://www.research.philips.com/technologies/syst_softw/ami/background.html

Business: Rapidly reconfigurable business processes including supply and value chains and e-commerce.

Example research: investigations that are embodied in network/graph theory and that result in reconfigurable, dynamic chains.

User: User observation methods and customer needs analysis relevant to product creation, development and testing.

Example research: investigations that lead to symbiotic collaboration between humans and technology.

FREQUENTLY ASKED QUESTIONS

- *What is the relationship between the Woodruff School in Atlanta and Savannah?* Think of a Woodruff School that is located in twelve "buildings" nine of which are in Atlanta, one in Metz (France) and two in Savannah (Georgia). All faculty in the Woodruff School have the same responsibilities, rights and privileges. All faculty are judged by the same criteria for promotion and tenure, namely, research, teaching and service.

- *What is the balance between research and teaching expectations between faculty based in Savannah, Metz and Atlanta?* The expectations are similar for all faculty of the Woodruff School.

- *Who selects the faculty for this cluster?* The faculty of the Woodruff School interview the candidates. The interview lasts for three days and candidates are interviewed at both Atlanta and Savannah. The Woodruff School Savannah Faculty Recruiting Committee makes its recommendations and the Woodruff School Chair makes the final decision wrt who is offered a faculty position.

- *What do you mean by a cluster hire?* The technical skill set of the hires complement each other and their personalities are such that this cluster is able to work collectively to address complex problems that cannot be tackled by an individual in the cluster.

- *When will I know if I am going to be offered a position?* A decision as to who will be part of this cluster will be made not later than March 2008.

- *Are you hiring at all ranks?* Yes. Preference will be given to:
  - recent PhDs, including those with post-doctoral experience, who will provide intellectual leadership in developing interdisciplinary research and teaching portfolios with strong supporting disciplinary emphasis;
  - candidates with a strong disciplinary background in fluid mechanics and heat transfer for one out of the four positions;
  - women and underrepresented minorities.

- *How can I improve my chances of being invited to join this cluster?*
  - Talk to Professors Bert Bras and Farrokh Mistree **BEFORE** submitting your application.
  - Respond to what has been written in the ad. This will most likely necessitate your modifying your current, generic application packet.
  - Bear the following in mind when you prepare your application: We are looking for people who are risk takers and potential thought leaders. Be sure to include material that helps us get a feel for your potential in developing our Strategic Engineering Program. Some examples: new courses for undergraduates and graduates that further our strategic engineering curriculum; research projects that you would offer incoming graduate students; a well-thought out vision for your career (5 year horizon) that is exemplified by a plan of action that reflects strategic thinking and includes the initial steps to achieving your vision.

- *How do I apply?* We are only accepting applications via the web.
  http://www.me.gatech.edu/employment/employ.html
  After you have submitted the information please send an email to Professors Bert Bras and Farrokh Mistree alerting them.

Cluster Hire Announcement

Strategic Engineering

The George W. Woodruff School of Mechanical Engineering,
Georgia Institute of Technology Savannah Campus

In 2005, George W. Woodruff School of Mechanical Engineering expanded its academic and research program to the Georgia Tech Savannah Campus. The mission of Georgia Tech Savannah is to create signature programs that complement those established in Atlanta. Accordingly, we seek to further the high-impact, interdisciplinary area of *Strategic Engineering* by implementing a "cluster hire" strategy for up to four tenure-track faculty beginning Fall 2008.

These positions are open to candidates at all ranks. Preference will be given to candidates who show, in their application, a commitment to achieving excellence in the scholarship of integration and the scholarship of engineering education. Additionally, preference will be given to candidates who can show how their appointment will add value to the nascent Strategic Engineering Program underway at the Woodruff School in Savannah. We are particularly interested in candidates who, in the context of Strategic Engineering, articulate a vision for innovating at the interface between the engineering sciences (e.g., fluid mechanics, materials, heat transfer and manufacturing) and product creation (e.g., design, manufacturing, life-cycle, business activities) in distributed engineering environments. Application domains of interest include:

- *Ambient Intelligence:* Design, analysis, and fabrication aspects of products that employ ambient intelligence (are context aware, adaptive, and anticipatory); systems that make use of ambient intelligence to facilitate learning.
- *Sensors:* Design and realization of embedded sensors, sensor networks that facilitate the creation of innovative products that embody ambient intelligence.
- *Materials:* Physics-based models of materials and processes for the distributed analysis and design of material suitable for use in engineered systems that embody ambient intelligence.
- *Customer:* User observation methods and customer needs analysis that account for variations in culture and are relevant to product creation, development and testing of products that embody ambient intelligence.

These positions are particularly suitable for

- *experienced faculty* interested in leaving a legacy by creating an innovative curriculum for Strategic Engineering, contributing to a cluster-based environment for success, and helping others rise to their full potential, and
- *recent PhDs*, including those with post-doctoral experience, who are able to provide intellectual leadership in developing interdisciplinary research and teaching portfolios with strong supporting disciplinary emphasis, who are drawn to an innovative academic vision and who are committed to achieving this through working and learning collegially and collectively.

Initial inquiries about these positions may be directed to:

Professor Bert Bras
Chair, GWW Savannah Recruiting Committee
Telephone: 404-894-9667
Email: bert.bras@me.gatech.edu

or

Professor Farrokh Mistree
Associate Chair, GWW Savannah
Telephone: 912-247-6602
Email: farrokh.mistree@me.gatech.edu

Candidates should possess an earned doctorate or equivalent in engineering or a relevant discipline. Candidates are invited to apply on-line at http://www.me.gatech.edu/employment/employ.html. Please submit curriculum vitae, a statement of career objectives including a vision for this opportunity, copies of no more than three papers and a list of at least five professional references.

Georgia Tech is an equal education/employment opportunity Institution. The selection process will include a pre-employment background screening.