SUNY New Paltz is prepared to double down on its investment in 3D printing. Having inaugurated a three-year digital design and fabrication this fall, the college has applied for $4 million in new state funding. The money will buy about 7500 square feet of space to house this promising technology and create a comprehensive environment with equipment to teach it. The plan, the college says, is to share these resources with other educational institutions and private businesses in the region.

Many experts in technology have predicted that the interface of digital design and new fabrication capabilities in 3D printing will revolutionize how objects are designed and created. It wouldn’t be the first time that proponents of technological trends have turned out to have gotten such things wrong, of course, in technology, picking winners and losers is a risky business. If they’re right this time, however, the New Paltz college could serve a central role in the Hudson Valley getting ahead of the curve in terms of innovation, adoption and adaptation of an important technology.

For the college, this year’s big preparatory step was the establishment of a new certificate program and a support agent to collaborate on the establishment of its “organizational home” in New Paltz. Displaying the wide capabilities of the technology, the new course program is a collaboration between the school of fine and performing arts and the school of science and engineering within the college. It seems to be attracting non-traditional students. According to dean, Paul Kassel, non-credit students rather than enrolled undergraduates constituted the lion’s share of the 24 registrants for the first cohort of the program.

College president Donald Christian is convinced that 3D printing will provide a growing stream of opportunities for local businesses in the Hudson Valley. “It’s a portal to all technologies,” he explained in an interview a couple of weeks ago, with applications in such diverse areas as 3D art and sculpture, biomedi- cal development, materials science and design. He offered examples in the region of such.

Educational outreach is a big piece of the college’s plan, said science and engineering dean Dan Freedman. Various school districts and county BOCES have been noise makers. Freedman says the program is collaborating with the state’s SUNY College of Nanoscale Science and Engineering, the immediate stimulus for state government’s interest in a holistic approach to economic development.

A SUNY New Paltz map proudly displayed the advanced manufacturing center’s 14 partners, who range from substantial financial supporters like Dean Eldridge’s Hudson River Ventures and Central Hudson to five community colleges and Marist College’s cloud computing center, and include the local secondary school entities Ulster ROCES and New Paltz High School, the local firm Sonoko-Tek, Sullivan Coun- ty’s Economic Development Bureau, Bank of America, Council of Industry and the Hudson Valley Economic Development Corporation.

The curriculum devised for the program demonstrates its unusual scope. One of the inaugural courses, Crafting in Virtual Space 1, teaches approaches to three-dimensional visualization and construction in a variety of materials. The other, called Programming for Media, introduces novices to programming and animation, a wide range of applications in programming images, animations, interactivity, prototypes and production.

The second pair of courses to be offered next semester will consist of Crafting in Virtual Space 2, which will develop a further understanding of the programming tools of 3D technology, and Introduction to Mechatronics, the integration of the various technologies in the design of the computer-controlled systems.

In the third and final semester of the program, students will work in a collaborative environment to apply their knowledge to design situations. And in a final course they will take a series of seminars with experts in the field for a look at the broader tech- nological aspects and implications of digital design and rapid prototyping. As anticipated, the program has turned out to be of interest both to engineers and artists and to those of an artistic persuasion. Kassel likes to say that the technology breaks down the left-brain/right-brain duality, both sides of the brain can be involved. Some artists embrace technology, some engineers pioneer artistic expression.

The Next Big Thing

At the end of May, a new initiative termed the “The Next Big Thing” had been rolled out at the centerpiece of the Hudson Valley Advanced Manufacturing Center at SUNY New Paltz. “3D printing provides a great op- portunity to build on our strengths in the art and in en- gineering and technology,” Christian said at that time. A couple of weeks ago, Christian reiterated his view that 3D technology could become “a magnet of educational opportunity for the Hudson Valley.” A robust commitment to its early development, he suggested, could bring the region an important competitive advantage over other regions. In for a dime, in for a dollar. The transformation of digital modeling produced by virtually any computer-aided design or animation modeling software into a three-dimensional object that is built layer upon layer is a remarkable achieve- ment. What you see is what you get. 

Imagine, explained the techie website mashable. com this March, the transformative possibilities. A powdered solid made out of a weak flour, bound astronauts can print what they need as they travel. 3D meat could fill the human need for protein. Recently, we were told we could order a personal designer designmade right in our home, in six. A tooth in six seconds. We could scale models, gifts and clothing. We could buy 3D hearing aids or 3D- printed homes.

Or, as we knew from the media, we could shoot someone with a 3D-printed gun.

What fun.

The most important part of the technology is even more startling than the applications. It’s the ability to improve design immediately with a simple pro- gramming change. Luana lorio, who oversees research at GE’s laboratory on 3D printing in Niskayu- na, last month proudly impressed Tom Friedman of The New York Times in explaining the speed of design changes: “The feedback loop is so short now,” she said. “In a couple days you can have a concept, the design of the part, you get it back and test whether it is valid.”

Friedman made what lorio told him next the title of his article: “When complexity is free.”

State backed local bet on technology

New Paltz has come with the same money. The new state money for SUNY New Paltz comes through – and at this time there is no firm commitment that all or any of it will – the move will constitute a sub- stantial state-based local real estate gaming. With previous funding commitments and college resources already being invested in this program, the total financial commitment to the initiative will in a year or two approach approximately ten million dollars.

Meanwhile, the college plans hiring to add its ca- pacities. In a cost-avoided special with fierce competition for limited resources, the SUNY Investment is pretty close to real money. And that investment, if the exam- ple of state support for the nascent technology industry is any precedent, could well be just the beginning.

On September 18, the mid-Hudson regional develop- ment council announced its endorsement of 21 projects, including SUNY New Paltz, the only Ul- ster County project endorsed: “SUNY New Paltz will establish the region as a national center where addi- tive manufacturing technology design, research and manufacturing can flourish.”

Not all the endorsed applications will get funded, and not all the ones endorsed won’t. The state says the local state for the nascent technology industry is any precedent, could well be just the beginning.

— Gaddy Sveikauskas

In the near future this column will talk with local digi- tal design and fabrication innovators. For further in- sights, go to Ulster Publishing's Hudsonvalleynowbusiness- review.com.

Steve Greenfield
New Paltz