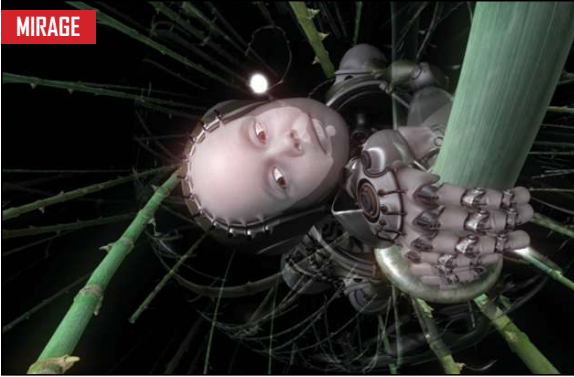# 2012
EDUCATION
SUPPLEMENT

S V A School of VISUAL ARTS
MFA COMPUTER ART

6 STUDENT ACADEMY AWARDS

MIRAGE

YoungWoong Jang

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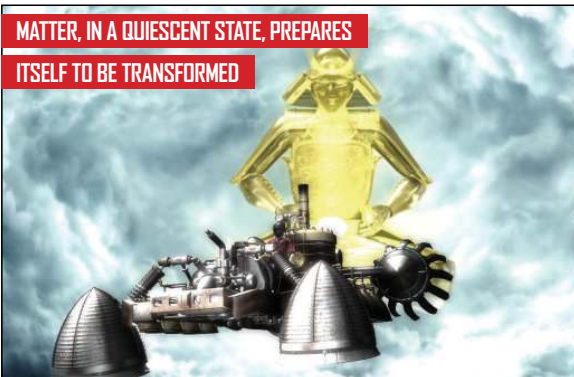
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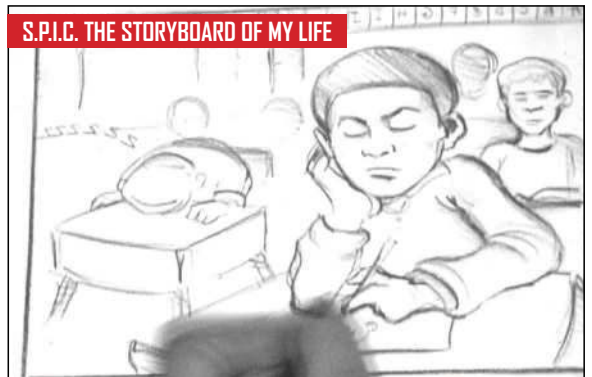Sukwon Shin

MATTER, IN A QUIESCENT STATE, PREPARES ITSELF TO BE TRANSFORMED

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WORKING
CLASS

STUDENTS APPLY THEIR CLASSROOM KNOWLEDGE IN CHALLENGING PROJECTS

By Karen Moltenbrey

It's been heard by students and even those in the professional ranks that recent graduates may have the necessary book knowledge but lack the relevant real-world practical skills required by employers. Not so at a number of animation schools and colleges, which strive to give their students a taste of the deadline and production demands of actual studios. This is typically achieved by assigning final or senior projects, which incorporate work that simulates the demands students will face in the job market.

"Spacebunnies!" is an animated short film that was a senior thesis from SVA student John Youlen Sung.

OH SHEEP!

A selection in this year's SIGGRAPH Computer Animation Festival, 2012 Filmakademie graduate Gottfried Mentor's animated short film "Oh Sheep!" shows what can happen when two shepherds, at odds with each other, go to great lengths to keep their flocks separated.

The comedy/tragedy contains 18 characters in total, including the two shepherds and 16 sheep. These, as well as the backgrounds, were modeled and animated in Autodesk's Maya, and for detailed sculpting and texturing, Autodesk's Mudbox, Pixologic's ZBrush, The Foundry's Mari, and Adobe's Photoshop were employed. Shading and lighting were done within Autodesk's Softimage, and then rendered within the Solid Angle Arnold renderer. Editing was performed in Adobe's Premiere and compositing in The Foundry's Nuke.

According to Mentor, the most challenging aspect of the film was animating the large number of characters and rendering and shading them to achieve their "haptic" and touchable look while keeping acceptable render times. Getting that look required a great deal of detail insofar as the textures and displacement maps were concerned, as well as extensive work in terms of developing the shading networks.

"The sheep's fur had to have the desired look of softness while retaining shape patterns on the animals' bodies; the sheep also had—in some shots—to look as if they were soaked with blood," Mentor says. This was achieved with hair instanced on a particle system. Hair setups were also needed for the shepherds' beards and coats, as well as the grass in the meadow.

The animated short required quite a few complex tasks, including a muscle system for the sheep's fur, as well as clothing simulation for the shepherds' jackets and fluid simulation for the blood.

At one point, Mentor and his group even contemplated a 3D stereo version of "Oh Sheep!," conducting several tests before opting against it due to time limitations. "We decided to keep our focus on other priorities, like the look and the animation," he says.

From concept to completion, the animated short took nearly 20 months to complete.

"At some point, students need to display their work in order for it to have some real meaning," says Jim McCampbell, department head of Ringling College of Art & Design's Computer Animation program. "It's the one moment students can show what they have been able to achieve within a four-year education here. Having a theatrical showing of their work is what drives them as far as the academic experience. And when it's done, they are prepared to enter the industry."

Attention-getting Films

At Ringling College of Art & Design, a four-year college in Sarasota, Florida, offering a Bachelor of Fine Arts degree, students take a course called Animation Preproduction, where story ideas and designs are developed and iterated on specifically for the students' senior projects. Students then define and refine their ideas into animatics during the spring semester of their junior year, while production of their films occur in both semesters of their senior year. The shorts are completed approximately a month prior to graduation.

"The value [of the projects] is huge. Students learn an incredible work ethic," says McCampbell. "They learn to separate themselves from their work enough to look at it objectively. They learn to problem solve like you wouldn't believe. They become incredibly adept with the tools that they use. Perhaps most of all, though, they gain the confidence in themselves and their abilities. Nothing is more powerful than accomplishing something that even you yourself didn't believe you were capable of."

At Ringling, students are able to select their own projects and choose whether they would like to work in groups or by themselves. While most of them opt to work solo, there is a growing trend toward group work, explains McCampbell.

Students at the four-year New York City-based School of Visual Arts (SVA) graduate with a Bachelor of Fine Arts degree—but not before they com-

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plete a final project. "Our senior thesis projects are focused on and embodied by the final theatrical screenings each year," says John McIntosh, chair of the college's Computer Art, Computer Animation, and Visual Effects Department. The projects—animated shorts—are screened at the SVA Theatre in midtown Manhattan.

The duration of the shorts is up to the students, though they typically span 90 seconds to five minutes in length. "We let them decide on a length that reflects the need of the story as well as the students' ability to successfully complete the production," says McIntosh, noting that the young artists can work alone or in collaborations, either formally or informally.

Each project needs to be "a complete package"—entertaining, inspiring, and intellectually engaging at the technical and aesthetic levels. "It needs to hold [the interest of] an audience of about 500 to 600 people, like a feature film should, and effectively show the skills they have learned over the past four years," McIntosh says. "This results in a fairly daunting project. If we simply looked at it as a package where students produce a bit of entertainment, that's one thing. But when we present it to students that the project represents what they have learned over the four years, that becomes another thing altogether."

Savannah College of Art and Design (SCAD), a four-year university offering bachelor's and master's degrees, operates on a quarter system, with 10-week sessions. The main campus is located in Savannah, Georgia, with additional campuses in Atlanta, Hong Kong, and Lacoste, France.

According to Peter Weishar, SCAD's dean of the School of Film, Digital Media and Performing Arts, a large portion of the senior year is devoted to the final project. Students have the choice to either work alone or collaborate with their classmates on larger projects. Collaborative work classes teach the necessary workflow skills for those in groups.

A student's portfolio is his or her calling card, Weishar notes. The presenta-

ramus

The student project "Ramus," from School of Visual Arts students Danica Parry (creative head) and Chris DeVito (technical head), not only won the school's Jury Award for Best of Show, but also was selected for the SIGGRAPH Computer Animation Festival's Electronic Theater. In the animated short film, a young sapling named Ramus becomes separated from his mother tree by lightning from a thunderstorm. He quickly finds himself in danger from an eager woodshop worker and must find a way home in order to survive.

"We found that together we had a nice balance of skill sets that helped make this piece well rounded in terms of overall production quality," says Parry. "We weren't concerned about making a thesis; we wanted to make an interesting film we could look back on and feel proud of." To this end, the pair had joined forces and revised an older version of Parry's "Ramus" (DeVito had been working on a different

short film), going forth with each other's career objectives in mind.

The team used Autodesk's Maya and Pixologic's ZBrush for modeling, Autodesk's Mudbox and Adobe's Photoshop for texturing, Maya for animation, Chaos Group's V-Ray for lighting and rendering, and Adobe After Effects and The Foundry's Nuke for compositing.

Dynamics, including a shot in which the Wood Shoppe explodes, presented the biggest technical challenge due to the multiple simulations (dynamic branches, leaf sims, and shatter sims on the walls and roof). The polygon count was on the high side, too, particularly with all the leaves, requiring a number of geometry caches and proxies.

Of course, time, or the lack thereof, was omnipresent. "Balancing quality and render times was probably the worst [task]," says DeVito. "We sacrificed a lot of bigger ideas for the project in order to meet deadlines." Looking back, the two students estimate they spent 2,000 hours on the film, often working a 12- to 14-hour day or longer. Production started in September 2011 and finished in early April 2012.

"We both learned a ton about teamwork and working under tight deadlines. Communication was also vital to getting this done on time," says Parry. "We got to focus on the skills that we wanted, leading to opportunities for work that we wanted to do in the real world. We both now work faster and smarter."

MY LITTLE FRIEND

It's quite an accomplishment to have your student film win a Student Academy Award. And that's just what Eric Prah from Ringling did, earning a Bronze Award in Computer Animation from the Academy of Motion Picture Arts and Sciences for "My Little Friend," a film about a hungry hobo whose food is stolen by a greedy pigeon.

"I was trying to come up with a story that was funny but not overly complicated, so I would have time to polish everything," says Prah.

The film is all-CG, but Prah designed it with a claymation feel using Autodesk's Maya for modeling and animating, with Adobe's Photoshop for texturing. Pixar's RenderMan was used for lighting and rendering, while compositing was done in The Foundry's Nuke.

According to Prah, he spent a lot of time tweaking and revising the story, adjusting and redoing the storyboards and animatics, and playing with the character designs until he was happy with the results. From a technical perspective, getting the environmental textures to fit with the character textures took some time.

"I knew I wanted the characters to feel like they were made out of clay, but because I didn't have time to make all the sets and props realistic, I had to find a middle ground between a realistic mixture of textures and a flatter, more cartoony look," Prah says. "Some of the earlier props and set pieces took a while to figure out, but once I had enough done to establish a look for the film, filling in the rest of the textures went by pretty fast."

Prah began preproduction on his award-winning film midway through his junior year, finishing near the end of senior year. "I had to work with many different parts of the CG pipeline to finish my film. Everything I learned in my previous years at Ringling, I had to apply and finish my senior year," he says of the long process.

tion and the way the reel is put together are all part of the package. "But it's not just about putting a portfolio together and grading it," he says. The school also wants to be sure that students have a sense of how studios and the industry in general work.

Global Perspective

The Filmakademie Baden-Württemberg in Germany is a renowned film school also known for its Institute for Animation and Visual Effects. Over the years, the school has built a reputation for student-produced animations. For the most part, students have 15 months to work on their final projects. In the second part of the junior year, each student develops four concepts, including a transmedia concept, R&D concept, and two projects they can develop without limitations or restrictions.

When the senior year begins, students decide which projects they want to work on. If they choose to work by themselves, they must develop a production bible, including a script, storyboard, and strategy for realizing the short film. Then, animatics are prepared, and animation and technique tests are done; based on those results, a production plan is made for each project. This leaves about 10 months to complete it.

"Students often finish their projects three minutes before the diploma presentation," Andreas Hykade, professor of animation, says with a chuckle.

Creating final projects helps students identify their skill sets and discover what part of the process interests them the most. There is another benefit: "bringing an idea to final form and setting a path for a fruitful artistic career," says Hykade.

Another school with a reputation for students who produce quality films is Supinfocom, a five-year computer graphics university with campuses in Valenciennes and Arles (France), and Pune (India). Here, students work on individual films and then in small groups on thesis projects. Upon completion, the films are entered in festivals around the world, where they are regularly short-listed; some garner prizes.

Here, students first create individual projects, and once students are well under way with these, they must develop a six-minute thesis film in parallel. The difference between the two, says Jerzy Kular, head of studies, is that only an average of one in four or one in five thesis projects are selected for continuation. Students whose films are not selected then join a team with a budding animator whose project made this cut. All the team members then contribute to developing the selected project further and are considered co-directors, even though the tasks are split up as they would be on a studio-produced film. A large part of the preproduction is done during the last part of the fourth year, but the real production, says Kular, happens during the fifth (and final) year.

Dedicated to the visual arts, Gobelins School of the Image in Paris is funded by the Chamber of Commerce and Industry of Paris. It is best known for its Cinéma Department of Animation, which has produced many graduates

At Cogswell College, students can opt to participate in a big-group animation, such as "Worlds Apart," the school's second Project X collaborative film.

who have gone on to work at major animation studios, including Pixar.

Gobelins offers a project-based curriculum, with interdepartmental projects and collaboration. These projects often are featured in festivals around the world.

At Gobelins, student artists are required to create an animated short film, working in groups of between four and six budding animators. The production spans six months, starting in early December and finishing in early June. During this time, the students team up with composers, musicians, actors, and a sound engineer, among others, in order

REVIVING REDWOOD

Ringling animation student Matthew Sullivan decided to create a film about an old man's struggle to bring life back to an abandoned logging town called Redwood River in his thesis project called "Reviving Redwood." The project caught the attention of the Academy of Motion Picture Arts and Sciences, leading to a nomination in the Animation category at the 2012 Student Academy Awards.

"Working on my own film was extremely useful in developing my ability to work with shots 'in the cut' and being able to see if they were working well together. Most other shots that I had worked on before this film were one-offs, so I never really had to deal with eye tracing, color matching, layout 'pops' between shots, or any other cinematography obstacles like that," Sullivan says of the assignment. "It really helped me get a feel for shot management and spending time where I needed it. Having an array of shots to complete allows you to grow in a lot of ways across all aspects of the production, all the way from story to final comp."

"Legacy," from director Adam Floeck and fellow students at SCAD, employs a rustic look inspired by Steampunk art.

to complete their film projects.

Vancouver Film School (VFS) in Vancouver, British Columbia, offers 13 one-year, post-secondary programs spanning the entertainment arts. "Most of our classes in the Game Design program are focused on preparing students for their final projects and, in turn, working in the industry," says David Warfield, head of Game Design.

In the school's Game Design curriculum, final projects comprise eight weeks of preproduction and 12 weeks of development, resulting in a playable game with core gameplay elements. Students start the projects—which are

usually five to 10 minutes in duration—at the beginning of their fourth term and continue them halfway through their sixth, and final, term. Thus, they are able to complete their projects and do a postmortem, as well as prepare their online portfolios, before graduation.

"The final project is the core of the experience that prepares them for what it is really like in the industry," says Warfield. "It allows students to show that they have the skills and the passion to create a truly entertaining and creative gameplay experience, and that they understand what effort it takes to create a game from concept to completion."

VFS's 3D Animation & Visual Effects program also emphasizes student projects. The studies place a high value on traditional art skills, so students can further develop fundamental skills that are applicable and transferable to digital production, says Marianne O'Reilly, head of Animation & Visual Effects.

Students begin preproduction early since this is a one-year program, around

The animation was created in Autodesk's Maya, with lighting and rendering done in Pixar's RenderMan for Maya and compositing done with The Foundry's Nuke. Because the production schedule was tight, Sullivan used as many compositing tricks as he could. "I made a template early in production that would include most of my comp needs on an average shot, and this really allowed me to streamline the process of getting frames through Nuke and on to being finaled," he says.

The film has an overcast and de-saturated tone, which presented Sullivan with a number of challenges throughout. "There seemed to be a fine line between what looked like overcast and what just looked like something that had been de-saturated in comp," he says. After a great deal of time researching the quality of light in this type of scene, the artist was able to better work the shadows and the colors to help tell the story. "I needed to nail that mood in order to set up the exposition for the rest of the film," Sullivan adds.

Creating a student film that goes above and beyond requires a lot of work: Sullivan spent eight to 14 hours a day, including Sundays, for the entire year on his project. He began story and visual development in January 2011 and started production by the end of summer, finishing the film April 1, 2012.

renee

The DAVE School's "Renee the Movie" is a gripping real-life story of Renee Yohe, who grew up in Orlando, Florida, a victim of bipolar disorder and became lost to addiction until getting help from some friends. When the indie movie needed some visual effects work, between 35 and 40 students, along with some staff at the DAVE School, stepped up to assist. "It was a total DAVE School effort," says Kim Dawson, co-producer, of the help from the school. In addition, students and instructors from Valencia College worked alongside the professional crew; Full Sail students and instructors helped with the postproduction editing and sound.

Some of the students assumed larger roles on the professional production. Under the supervision of VFX artist and director Lee Stringer, DAVE School students Syrena Edmonds, Zack Heimbegner, Brian Mullen, and Nathaniel Skinner spent months producing visual effects. And their efforts paid off, as the four received a Visual Effects Society nomination this past year for their endeavor.

The film is 102 minutes long, and all told, 63 staff and crew, as well as more than 100 students from the three schools, helped the film to completion. Prep work began in July 2010, shooting took place for six weeks in late Feb-

the fourth or fifth month. "Our unique educational model balances theory and hands-on production so that, after just one year, students are prepared to launch their career as a digital production artist," says O'Reilly.

Projects are completed "just in the nick of time," says O'Reilly. "The final renders and compilations always seem to come down to the wire. It's an exciting time to see it all come together."

The school hosts a private technical viewing of the projects, with a public showing held on grad night.

A Larger Picture
Cogswell College in Sunnyvale, California, offers a Bachelor of Art degree in Digital Art and Animation. Rather than requiring that students only work on individual or small-group projects, the college gives students the opportunity to work on Project X, a lengthy, large-group collaborative film on which students work "a lot, five days a week and

sometimes weekends," says Michael Huber, Project X professor.

Project X is Huber's concept. He contends that a Project X gives students a real taste of a studio environment, and they learn to work in teams and areas

that reflect their particular expertise. They also learn to lead and to follow directions. "The quality of the work and the standards are very high," he says. "It reflects what you would see at an actual studio. And it's our way of preparing

These stills are from Academy of Art Game Design student Peter Kyuyoung Lee, who created them for a visual development class.
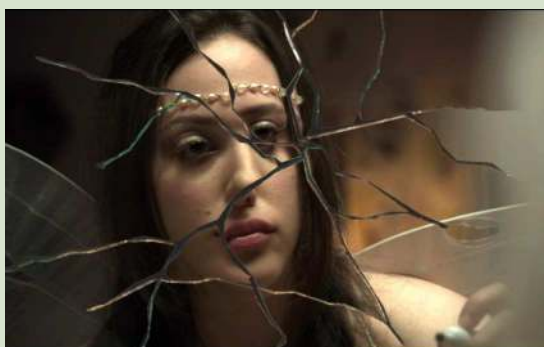
ruary 2011, and post was completed in December 2011. The DAVE School students created and integrated nearly 120 2D and 3D visual effects shots on this low-budget project.

"We had very sophisticated shots that required complex tracking and careful planning. The film covered a period of time when the main character went through pretty radical makeup and hair changes, requiring special effects in addition to the visual effects," says Dawson of Possibility Pictures, which worked under the moniker Two Streets Entertainment for this project.

Having students assist in the production was invaluable to the filmmakers, who were driven by passion in making this movie. So were the students. "I think the students truly got a hands-on experience with training from mentors who had enormous experience and talent," says Dawson. "This was real-life classroom experience, and I think that most, if not all, learned how and why mistakes happen and were able to see, touch, and feel when magic occurred through careful planning and bold vision by the director, actors, and talented crew members. Films are always a bit of a second-hand family endeavor, where you become emotionally engaged with your team members and you problem-solve on the fly."

According to Steve Warner from the DAVE School, most of the students from that facility who assisted on this project are now working in the industry.

students for the real world and getting them involved in something that is real."

Before Project X, students focused on an individual project—and some still opt for that rather than the group-based film. "Not everyone wants to do a project based on someone else's concept. Some want to do their own thing, and we have to support that," Huber says, noting that those optional narrative pieces are between 90 to 120 seconds in length. "These [individual films] are not as integrated as Project X, where we bring in industry pros."

The students currently are working on the school's third Project X film, which has a working title of "Mach 1" and is scheduled for completion in December. The first was titled "The Offering," followed by "Worlds Apart." The movies are finished in HD resolution and average nine minutes in length. "They are big productions," Huber says. "You can't tell they are student films."

A Project X will span approximately a year and a half. Many students sign on during their junior year and have the satisfaction of seeing the work through to completion, though some will come aboard during their last two semesters.

Another education institution that takes a slightly different approach to final projects is The Digital Animation and Visual Effects (DAVE) School, which offers a one-year intensive program for computer artists focusing on animation and visual effects for film, television, and games at its campus in Orlando, Florida. "Most schools shepherd the students through the phase of learning computer graphics and then guide them to fulfill their own personal final project, their senior thesis if you will. We are more production oriented, so we don't have individual final projects, but rather group ones," says Steven Warner, executive director.

"Our goal is to simulate the environment the students will find while working within the industry," Warner explains. "They work together for the sake of the larger project, with the end goal of meeting the deadline and completing the film."

The final project spans three months, the length of one of the school's terms, with everyone working on shots and having the opportunity to model, light, texture, animate, render, and composite. The concept for the actual project comes from pitches by outside sources. "We're constantly considering projects for Block 4," says Warner, noting that the instructor for that class has priority over what is selected.

Portfolio Projects

Some schools forego senior projects and instead focus on smaller, individual ones created throughout the program. Such is the format at Animation Mentor, an online animation school offering an 18-month program taught by experienced animation professionals who serve as mentors for the students.

In "Hai Hase," from directors Florian Greth and Julia Reck, students at Filmakademie Baden-Württemberg, tattoo characters try to impress the new ink.

"We try to get them thinking from the get-go in terms of what it would be like when they are in the real world and have deadlines, and have to get projects done on time," says Bobby Beck, CEO/co-founder of the school. "[The work] is never done; it's just taken away from you. We make sure they get into that mentality right away. That's how things are structured."

Students at Animation Mentor complete approximately four full semester-long projects. After foundation work, they progress through Classes 2 to 5, which are project-based; Class 6 focuses on polishing and preparing their portfolio, during which they update the work and "take it to the final level," says Beck. "By then, they have gone through the whole program and their skills have taken a giant leap, so they can go back through their earlier sequences and pump them up a bit so they can stand on the same level as their more current work."

Full Sail University in Winter Park, Florida, awards associate, bachelor, and master degrees in audio, film, design, computer animation, business, and other fields. Computer animation students here complete various projects as they move through their degree program.

"We don't have them do an animated short film because we are an accelerated degree program. Students receive their bachelor's in 21 months," says Pete Bandstra, Full Sail's program director for Computer Animation. Students attend classes 40 hours a week on average, in addition to working on their art projects. "They are immersed about 100 hours a week in 3D," he adds.

Nevertheless, students still do a final project. Each is different, depending on the student, who will build assets around an area, such as modeling/texturing, animation, or texture painting, and will develop a portfolio around those. A preproduction class enables them to better plan their asset development.

One of the largest art and design schools in the US, the Academy of Art University in San Francisco offers associate's, bachelor's, and master's degrees for artists and animators. The curriculum consists of separate tracks, such as animation, modeling, visual effects, and so forth, as undergrads work toward preparing a demo reel or portfolio of their work showcasing their specific area of expertise.

In addition, students work collaboratively to produce a larger fully-realized project, such as a short made by groups of students utilizing a concept of their own (such as "Monster and Dumplings," which received a College Television Award for Best Animation), visual effects work on independent productions (such as the recent Cannes winner "Beast of the Southern Wild"), public service work, and short films originating outside the department.

According to Chris Armstrong, executive director of Animation and VFX,

undergrads can start or join a project at any time after receiving approval. Students sometimes work alone on these projects or in groups, depending on the scope of the work.

Gnomon School of Visual Effects offers artistic and technical training for careers in the visual effects and games industries. Although it does not offer degree programs, the school provides one-, two-, and three-year training options in Entertainment Design and Digital Production, in addition to various software workshops and online master classes.

"Gnomon operates differently from most schools. Instead of students focusing on what we normally think of as 'senior projects,' their time and energy are focused on creating an industry-level demo reel that prepares them for immediate employment in the film, games, or broadcast industry," says Brian Bradford, director of admissions. "Completing an animated short as a group effort can be rewarding and educational;

Richard Oud created this project for a creatures class at Animation Mentor.

however, it will rarely deliver what studios are looking for when they hire artists. Well-constructed demo reels allow students to appeal to specific job positions at specific studios, breaking down the creative elements of their art into assets that can be evaluated for their production readiness."

Within the animation, gaming, and visual effects industries, a portfolio and reel are vital for any student looking to transition to the professional world. Education facilities know this to be true, and are helping students prepare for this next step. ●

Karen Moltenbrey is the chief editor of Computer Graphics World.

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Insun Kwon, M.F.A. animation student, Daejeon, South Korea, *Girl in the Jungle*, 2012