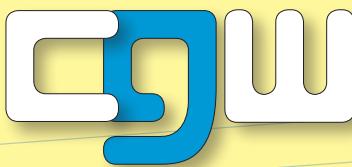


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**INSIDE: TOOLS OF THE TRADE
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"A la Francaise," from Julien Hazebroucq, Emmanuelle Leleu, William Lorton, Morrigane Boyer, Ren Hsien Hsu, and Supinfocom-Arles, a school of the Chamber of Commerce of Arles.

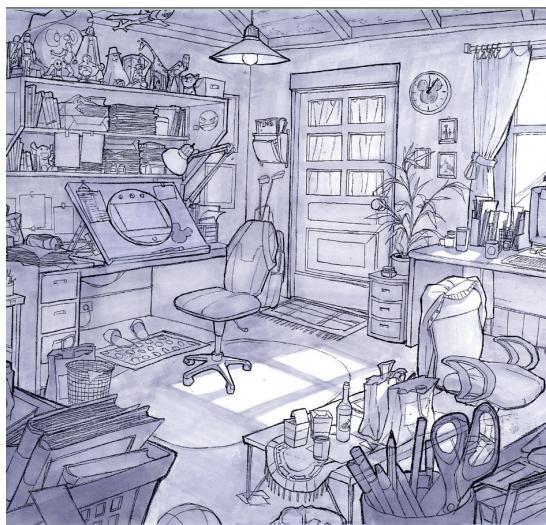


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Techno-Savvy

Students learn their trade while using the latest industry technologies

By Karen Moltenbrey



Students attending art and animation schools today have it especially difficult. For the most part, they are expected to already know how to use some basic tools, namely 3D content creation software, before they even step inside the classroom. And once the first lessons begin, they need to grasp and, eventually, master the animation and visual effects techniques as well as the technologies that are integral to a career in this industry.

Academy of Art
students use a range of hardware and software (top) while working on animation and game projects, such as Fan Zhang's "White Ops" (right).





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High-end 3D content creation software is now affordable, and most vendors – Maxon, Autodesk, NewTek, and others – even offer free or greatly discounted licenses for students. So, unlike several years ago, students today have personal access to the best tools in the professional realm. Some began using the software in high school, where they were introduced to the fundamentals of the program; others are self-taught with the help of training videos and books.

For years, industry professionals have emphasized that they are creative artists, not button pushers, that art is created by their hands, not by the software. And, that is a very true statement. However, they will surely acknowledge that the software (and hardware) are vital to their creative processes. The two go hand in hand; one necessitates the other. And, animation and VFX schools realize this. They teach students the techniques and skills they need to expand their creative horizons. And, as students continue to push the creative envelope, they look to more complex tools and technologies to help them fulfill their creative vision now, and to prepare them for the next step: a successful career.

Almost every art and animation school uses what is considered the universal tools of the trade: Autodesk's 3ds Max and Maya, and Adobe's Creative Suite. But most go beyond those basics and provide their students with a plethora of hardware and software to help them innovate and stay in step with the professional world. And, in some instances, a step ahead of the industry.

Keeping up with Technology

Ex'pression College for Digital Arts in Emeryville, California, prides itself on its state-of-the-industry classes and facilities. According to Brian Andrews, program director of Animation and Visual Effects, the curriculum is continually adapted to match the technological and production workflow trends in the industry. Recent techniques courses, therefore, have included stereoscopic production and previsualization.

The computer labs at Ex'pression are loaded with visual effects software, focusing on a pipeline that utilizes programs such as Pixologic's ZBrush; Autodesk's Mudbox, Maya, and MotionBuilder; The Foundry's Nuke and Mari; Pixar's RenderMan; The Pixel Farm's PFtrack; and Adobe's Creative Suite, among other applications. In addition, the campus features a dedicated motion-capture studio, greenscreen stage, soundstage, and an equipment room stocked with professional HD film-making equipment. According to Andrews, this enables the students to produce professional-quality assets for use in student projects.

In terms of animation and visual effects, the Academy of Art University instructs students in various aspects of the field with separate "tracks," such as modeling, animation, and so forth. Here, they typically use software such as Autodesk's Maya, Pixologic's ZBrush, Adobe's After Effects, and The Foundry's Nuke and Modo, for instance. Additionally, the school provides certain facilities (sound and greenscreen) on campus, as well as rent time and equip-

Pratt Institute helps students acquire the necessary technical expertise while developing the requisite artistic skills to produce pieces such as the artwork above, "E Flat in Forest."

ment (cameras, mocap space) when it makes the most sense.

The school also offers a computer game art and design program, taught within a state-of-the-art facility. The classrooms are equipped with workstations that run Autodesk's Maya and 3ds Max; Epic's Unreal Development Kit; Unity's SDK; Avid's Alienbrain; Adobe's Flash, Illustrator, and Photoshop; Pixologic's ZBrush; Toon Boom software; and more. According to the school, it provides everything that one would see in an actual Triple-A production facility, including a selection of PCs, Macs, and Wacom tablets. And, the students use a greenscreen room, full sound department (music and Foley), and more.

Full Sail University in Winter Park, Florida, awards accelerated degrees in audio, film, design, computer animation, business, and other fields. Students in the Computer Animation and Game Art programs complete various projects as they move through their degree program, and they need access to the latest technologies to do so. The school ensures that students are always trained on the latest hardware and software used in the industry.

Instructors at the school are industry veterans, and many are currently working on productions on a freelance basis, keeping their skills strong and connected to the latest industry trends and changes.

A unique program Full Sail offers for new students is called the Project Launch-

Carlo Gemmani, a student at VanArts, took advantage of the tools available at the school to produce his 3D animation project (right).

Box initiative, which provides its students (at a deep, institutional discount) with Apple technology to help them create music, film, game, animation, and design projects. "Project LaunchBox complements Full Sail's programs by providing students with access to a complete mobile studio for use throughout their school career and after graduation. With Project LaunchBox, students of all levels will be able to utilize their own personal MacBook Pro notebook computer loaded with Apple's complete line of creative software (CS6 Creative Master Collection), as well as degree-specific sets of pro-level applications," the instructor adds. Also included in Project LaunchBox are: Autodesk Entertainment Creative Suite, Pixologic's ZBrush, Apple's Final Cut Pro, and The Foundry's Nuke. In addition, students incorporate Wacom's Intuos5 tablet and Canon's LIDE 110 flatbed scanner as part of their technology package.

This unique combination of professional software and hardware gives the



students uninterrupted access to the tools they need to complete their coursework. Furthermore, students have access to a plethora of equipment in the campus computer lab, from Adobe's Photoshop and Premier, Autodesk's Sketchbook Pro and Softimage, and Side Effects' Houdini, to Vue's e-on, Imagineer's Mocha, PipelineFX's Cube, Next Limit's RealFlow, Andersson Technologies' SynthEyes, Unity's game engine, Perforce's revision control management system, and more.

In addition to the traditional classroom and labs, students have access to

advanced technology labs on campus, including a motion-capture studio (a Motion Analysis Eagle Digital system with a 23-camera volume), a greenscreen virtual studio room, and other equipment.

Tech Investments

Students at the four-year New York City-based School of Visual Arts (SVA) have access to some of the latest tools and technologies, which they use throughout their schooling and to complete their final animated short film projects. In addition, SVA students have at their disposal a ren-

A SMALL SELECTION OF VFS ANIMATION & VISUAL EFFECTS ALUMNI CREDITS INCLUDE Animator | Cobal Yu, Digital Artist | Marco Leone, Stereo Compositor | Matt Wheeler, Lighting TD | Mike Dhamey, Effects Supervisor | Jose Yapor, Visual Effects Artist **Assassins Creed III** Dan Vargas, Senior Artist | Magdalena The Avengers Aaron Gilman, Animation Supervisor | Cedric Lo, Lead Animator | Scott Jones, Creature TD Daphne de Jesus, Senior Digital Paint Artist | Nicholas Market, Previsualization Supervisor **The Bourne Legacy** Saptarsi Chakraborty, Compositor | Gia Sadhwani, Visual Effects Artist | Pietro Ponti, CG Sequence Lead **Bride Bill Watral**, Effects Artist | Justice Codron, Lighting TD **Cars 2** Stephen King, Animator | Shemie Law, Digital Painter **Cloud Atlas** Keyeong Peck, Senior Modeler/Texture Artist | Geoffrey Hancock, Visual Effects Supervisor | Lars Sorensen, Lead Modeler Alberto Landeros, Digital Compositor **Conan the Barbarian** Giancarlo Dechie, Lead Composer | Tim Choi, Stereoscopic Conversion Compositor | Giacomo Cavalletti, Environment Modeler **The Dark Knight Rises** Dean Mangano, Matchmove Artist | Frederik Lillelund, Lighting TD **Dead Rising 2** Fredrick Fasse, Animator **Dead Space 2** Wayne Gonsalves, Environment Art Lead **Deus Ex: Human Revolution** Ryan Nickel, Senior Animator **Diablo III** John Miller, Environment Artist Alvaro Buendia, Cinematic Artist | Steven Chen, Cinematic Artist **District 9** Neill Blomkamp, Director/Co-Writer | Shawn Walsh, Visual Effects Executive Producer | Robert Bourgeault, Lighting Lead | Paul Copeland, Character TD | James Stewart, Creature Supervisor **Dragon Age II** Nathan Zufelt, Senior Cinematic Animator **Epic** Boaere Cho, Pipeline Lead Storyboard Artist **FIFA 13** Jason McNamara, Associate Modeler **Futurama** Claudia Keene, Prop Designer **Halo 4** Steve Dyk, Lead Animator | Mark Tanner, Senior Animator Kolby Jukes, Senior Character Artist | Andrew Bosold, 3D Environment Artist **Harry Potter and the Deathly Hallows – Part 2** Henry South, CG Modeler | Joshua Herrig, Lead Lighting Artist | Jozef van Elenbergen, Pipeline Developer | Nuno Nisa Pereira, Visual Effects TD **The Hobbit: An Unexpected Journey** Adam Bradley, Senior Digital Paint Artist | Louis Cox, Camera TD | Aaron Gilman, Senior Animator **Hotel Transylvania** Chad Ellis, Senior Animator | Eva Fan, Animator Will McCrane, Digital Artist **Ice Age: Continental Drift** Boaere Cho, Pipeline TD | Graham Silva, Animator | Scott Lemmer, Animator | Thom Roberts, Animator **Iron Man 3** Tuba Yalcin, Effects TD | Alex Berson, Senior Digital Paint Artist | Aaron Gilman, Animation Supervisor | Clement Yip, Lead Animator | Diego Piccinato, Lead Compositor **Life of Pi** Alex Berson, Roto/Paint Artist | Andrew Juano, Roto/Prep Artist | Diego Piccinato, Digital Compositor | Jason McKeeman, Lead Creature FX TD | Kirk Chantraine, Pipeline Software Engineer | Oded Granot, Compositing TD | Richard Sun, Lighting TD | Ryan B. Clarke, Senior Compositor | Teh-wei Yeh, Lighting TD **Mass Effect 3** Nathan Zufelt, Cinematic Animator | Bartek Kujbida, Cinematic Animator **Men in Black 3** Juan Carlos Mendoza, Digital Compositor | John Iskandar, Lighting and Compositing TD | Raphael Santos, Roto Artist | Ricardo Gomez, CG Artist **My Little Pony: Friendship Is Magic** Jayson Thiesen, Supervising Director | James Wootton, Director **Oblivion** Denny Erranto, Compositor | Jamie Bowers, Texture Artist | Nicholas Market, Previsualization Supervisor **Oz the Great and Powerful** David Wesc, Character Animator Eva Fan, Animator | Geeta Basantani, Senior Compositor | Julius Kwan, Senior Animator **Prometheus** Gerard Van Ommen Kloeke, Character Rigging Supervisor Chrystia Siolkowsky, Roto Artist | Giancarlo D'Erchie, Digital Compositor | Louis Cox, Camera TD **Resident Evil: Retribution** Corey Coates, Compositor | Juan Carlos Mendoza, Digital Compositor | Diego Piccinato, Digital Compositor | Ricardo Gomez, CG Artist | Arthur Logo, Digital Compositor **Rise of the Planet of the Apes** Carolyn Wong, Creature TD | Richard Sun, Lighting TD | Chrystia Siolkowsky, Motion Editor **Sleeping Dogs** Andrew Poon, Cinematics Animator | Corey Klein, Lead World Artist | Hani Abu-Ghazaleh, Art Director | Rob Starr, Lighting Artist | Sota Yuyama, Gameplay Animator | Terence Wong, Character Artist **SpongeBob SquarePants** Andrew Overtoom, Animation Director **Star Trek Into Darkness** Srikanth Tallapragada, Lighting TD | Santhoshi Bala, Compositor Digital Artist | Denny Erranto, Compositor | Stephen King, Animator **Supernatural** Christopher

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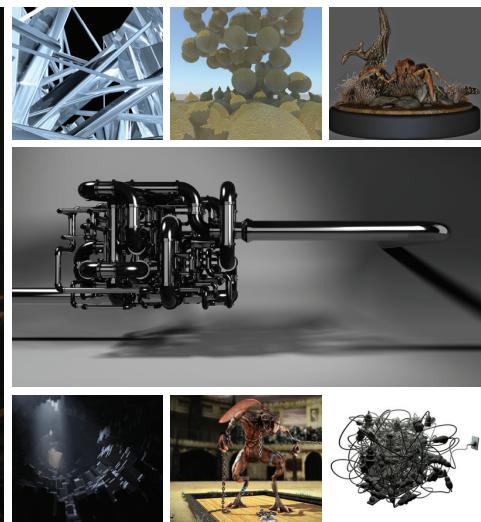
This combination of technical and design skills gives students mastery of existing animation and game techniques as well as the ability to create new types of software and experiences.

Research projects prepare students for careers in the entertainment and gaming industries, media art and applied scientific visualisation.

The programme was developed in close collaboration with Wellington's internationally recognised entertainment and digital technology sectors and is supported by industry partners Weta Digital (*visual effects for The Hobbit, Avatar*), PikPok (*game developer for mobile platforms*), and Fingertapps (*advanced interface technologies*) via scholarships, internships, and guest lecturers from these companies.

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Image above: © 2013 Eric (Kman) Kachelhofer, ACI instructor, CCPS. Created with 3DS MAX, After Effects, and Photoshop.



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derfarm, greenscreen studio, and a sound-recording studio.

John McIntosh, chair of the college's Computer Art, Computer Animation, and Visual Effects Department, points out that SVA Computer Art makes investments in its facilities regularly. Most recently, it purchased a motion-capture system and a camera-control system. "As we invest in our own stage, our interest is not specifically to use motion-captured data in our students' projects. Rather, we are looking at motion-capture systems as a reference system that, when combined with video capture, we expect to have exceptional reference for animation, albeit keyframe or roto, or a hybrid of all three," he says.

ing with MakerBot 3D printers – for some, a toy; for others, a tool.

Becoming Industry-Ready

"Staying ahead of the trends to ensure that our students are industry-ready is something we work hard to achieve," says Bobby Beck, CEO/co-founder of Animation Mentor, an online animation and visual effects school that assigns experienced animation professionals as mentors for the students. "Our instructors are all working professional animators who stay in front of industry trends. As a result, they help us to constantly shape and improve our program so that we are teaching to up-to-the-minute industry standards."

According to Beck, Animation Mentor's students are learning so much faster now that they have direct accountability with their peers through these productions. "They all want to do great work, and they all want to help each other," he says. "As a result, Animation Mentor now embodies a full studio dynamic, and that's always been one of our big goals for creating true industry-ready artists. Our students are no longer just working to gain great technical skills – they are also gaining real production experience."

Savannah School of Art and Design in Savannah, Georgia, prepares students for creative careers by providing them with industry-level technology across academ-



As for motion-camera control, McIntosh sees it as something of a lost art. As he notes, camera-control systems are nearly unheard of in colleges, yet the ability to make repeatable, live-action camera passes, plus integrate virtual cameras, are essential aspects of visual effects. "Understanding the nature and limitations of working with physical cameras can be a profound discipline for a computer artist," says McIntosh.

Another fairly new investment for SVA is in Blackmagic Design's cameras, the first of which was introduced at NAB in 2012, followed by others at this year's trade show in April.

Clearly, SVA is on the lookout for technologies that make an impact or have the potential to do so. And, the school is looking at tools that are turning heads, and as anyone in the industry knows, 3D printing has become increasingly popular of late. To this end, SVA students have been work-

A good example of Animation Mentor's efforts are found in its AMP Studio Production Pipeline, which the school has been developing for the past two and a half years. Starting with the Spring 2013 term, Animation Mentor students are training on the cloud-based professional production pipeline, which is similar to those used by studios. At the heart of the AMP pipeline is a professional-grade distributed asset and shot management tool that allows students to collaborate with other Animation Mentor students around the globe to produce finished films and sequences under the direction of their mentor. The education takes place on the school's Studio Learning

Platform — a series of proprietary tools that work together to provide students with the real experience of working on a studio production.

"Cloud-based production is the future of how films will be created, and our students are leading the charge," says Beck.



SCAD's Digital Media Center enables students to train in a real-world studio environment.

ic programs. This includes motion-capture equipment, RED cameras, and 3D printers. (SCAD has seven Stratasys 3D printers and one Solid Concepts PolyJet 3D printer for rapid prototyping.) However, it also provides unique access to essential tools. During this past academic year, for example, SCAD forged a partnership with Adobe that equipped students enrolled at all SCAD locations with free, universal access on their personal computers to the full Adobe Creative Suite Master Collection and Adobe Photoshop Lightroom.

Like a number of other schools, SCAD sees the benefit of cross-disciplinary interaction and working within a studio environment. The SCAD Digital Media Center, which opened in the fall of 2009 at the school's Atlanta location, houses academic majors within the School of Digital Media



At Animation Mentor, students, such as Shannan Taylor (whose work is shown at left), are using the school's new cloud-based professional production pipeline, similar to those used by studios.

Housing film and television in Savannah, Hamilton Hall is a 49,373-square-foot facility combining classrooms, studio space, and soundstages. Among the equipment that students have access to here are: RED's Red One, Sony's F3K, Arri's 416, Super 16, and Panavision's Panaflex G-2 cameras; Zeiss compact lenses; a Steadicam and Panther dolly with super jib; and Genus Hurricane 3D rig for stereoscopic filmmaking.

Hong Kong, Savannah, and Atlanta locales have motion-capture stages, greenscreens, and equipment checkout where students have free use of high-end cameras, lighting, and sound equipment. Atlanta's Digital Media Center has a television studio complete with control booth for live events as well as a 75-seat theater. Also of benefit to SCAD's film and television students, this academic year SCAD has partnered with RealD to be the exclusive 3D cinema provider at the university's 15th annual Savannah Film Festival. RealD

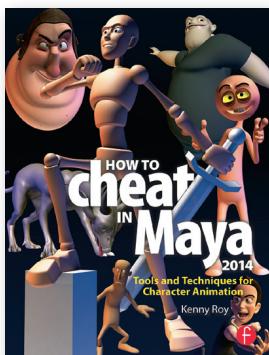
and the School of Entertainment Arts, including animation, interactive design and game development, motion-media design, visual effects, and television production. The 60,000-square-foot facility enables students to work and train in a real-world studio environment, creating experimental, immersive, and interactive pieces using the latest in technology – both practical and digital, says Tina O'Hailey, dean at the SCAD School of Digital Media.

In Savannah, students have the Montgomery Hall and Hamilton Hall facilities, home to the interactive design and

game development, animation, visual effects, and motion-media departments. At 128,573 square feet, Montgomery Hall, a former carriage factory, is equipped with 800-plus computers, both Mac and PC, running Adobe Creative Suite; Maya and MotionBuilder; DZED Systems' Dragonframe; Toon Boom's Storyboard Pro, Animate Pro, and Harmony; Pixar's RenderMan; Maxon's Cinema 4D; Epic's Unreal Development Kit; Side Effects' Houdini; The Foundry's Nuke; Massive; and more. To cut down on static from the amount of electronics inside, recycled tires serve as flooring in the facility.

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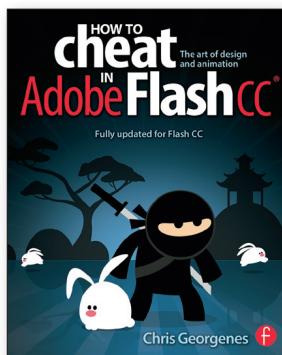
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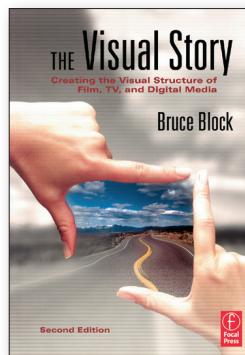
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Full Sail students use a range of technologies, including access to this mocap studio.

also provided SCAD with the company's patented 3D lens and glasses for permanent use, allowing the university's film and digital media students to screen their projects in stereo 3D.

Beyond the Tools

All the schools agree that giving students the right tools is just part of the equation. To complete the formula, they also need to be sure students know how to use the tools and are instructed in the creative process.

Peter Patchen, chair of the Department of Digital Arts at Pratt Institute, is among those who embrace this concept. "Pratt Institute's Department of Digital Arts offers an arts-based degree in which we place technology at the service of an idea. We believe the greatest creativity and learning come from a vested interest in personal expression," he says. "Our objectives are to help students grow conceptually while acquiring the technical expertise to explore their ideas in sophisticated ways. Our graduates are successful in both the fine arts and the creative industries because the department is a hybrid of these two worlds."

Cutting-edge technologies and industry-ready skills vary across the school's Department of Digital Arts degree programs. All the master's degree students, including those in the digital imaging program, are required to take a basic programming course. After this, animation and motion-arts program students continue to learn Python scripting for 3D applications.

Beyond the basics, Pratt's interactive arts students continue to learn coding in Max MSP, Open GL, C++, iOS, or other software as needed, as well as building custom hardware and interfaces. Other technologies in which students are instructed include laser cutting, 3D printing, 3D scanning, renderfarm basics, as well as some motion capture, Blackmagic cameras/greenscreen work, projection mapping, and fabrication of custom hardware.

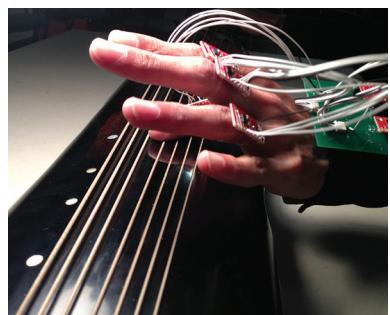
In addition, Pratt's Center for Continuing and Professional Studies (CCPS) serves adult professionals who are interested in updating their skill sets and staying competitive in an uncertain job market. "We have offered computer graphics certificate programs since 1985, and currently offer several career tracks in our Computer Graphics Certificate Programs, including Computer Animation and Video, Computer-Aided Design and Visualization, and Electronic Imaging and Illustration," says Karen Miletsky, interim director for CCPS.

Students in those programs take several levels of coding classes, including Responsive Web Development for Designers and PHP programming. The computer animation students also learn Autodesk 3ds Max and Maya software. Within the Computer Animation and Video track, CCPS teaches motion capture and the use of Autodesk MatchMover and MotionBuilder. By next spring, the center plans to offer 3D printing.

Raymond Yan, senior administrator

at DigiPen, is of the same mind. At DigiPen Institute of Technology in Redmond, Washington, the focus is not on chasing niche technologies as much as it is focusing on the foundation art and animation concepts. "It's not to say that we don't stay current with core production software, but we firmly believe that the competitive edge of our students must come from a deep level of traditional art and animation skills, combined with a solid creative process to help them find the visual solutions that studios need in order to get the job done," he says.

The DAVE (Digital Animation and Visual Effects) School offers an intensive one-year program for computer artists at its facility, strategically located on the backlot at Universal Studios. There, the students receive intensive skill and software training using a wide range of tools, including



CalArts students are known for pushing boundaries, such as they do here with Kontrol, a gesture-recognition project.

Wacom Cintiqs. "We are committed to having the current version of the latest technology," says Jeff Scheetz, school director. In addition, DAVE School students use a working Hollywood soundstage, a stereo 3D screening room, a 12-camera Vicon mocap setup, a 3D printer, RED camera, and an extensive greenscreen cyclorama.

"Our stereo training has put over 40

Filmakademie students are known for their short films, including (top) "Wedding Cake" and (bottom) "Relation."

graduates on films like *Star Trek Into Darkness* and *Iron Man 3*," says Scheetz. "While we are excited about technology, we still come back to the simple idea that fundamentals are the key to education. The basics of acting, camera work, lighting, and their effect on storytelling is where we need to keep our focus."

California Institute of the Arts (CalArts) also emphasizes the techniques, not just the tools, though the two can be intricately linked. In fact, the "art" has been an integral element to CalArts since its inception in the early 1960s when it was founded and created by none other than the master artist himself, Walt Disney. His mission was to establish an arts center, where all the disciplines he was using in filmmaking could be copied and emulated under an educational model. Its primary mission today is to be a



studio-based, experimental art-based institution designed to engage in cutting-edge technology and cutting-edge art practices, says Tim Leeser, digital media artist, educa-

tor, curator, and writer.

"Our mission is to create an environment where students not only learn about their particular practice, but also break

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new ground within that practice," says Leeser, who is the director of the Art and Technology Program in the School of Art and the director of the Center for Integrated Media at CalArts.

Leeser notes that CalArts, like most of the top-ranked schools, utilize the same industry tools in the curriculum. Years ago when computer graphics and animation fell within the computer science program of most schools, students had to learn the elements of the trade while working in the field. Today, however, many shops and students are using off-the-shelf and commoditized software. "Not only do the schools have the same tools as the industry, but the students coming into the schools are probably more fluent with the tools than



Pratt's CCPS helps professionals stay on the cutting-edge.

they have ever been in the past," he says.

Insofar as the school offers advanced hardware and software (a PhaseSpace motion-capture setup, an advanced 3D animation system, laser cutters, and state-of-the-art cameras, including Canon 5Ds and RED cameras), it is augmented by the cross-disciplinary learning environment.

"Studio space is an important part of doing the work, the process. Learning doesn't just happen in the classroom, but often through the interaction of students from different schools and how they interact and share information. It is a model that goes beyond the boundaries of a classroom, and I think that is incredibly important because that is how the world actually works," says Leeser. "[What's critical] is using current technology that's on the market and making sure that technology is supported through access within the studio space."

International Approaches

Technology is a key component to learning at Sheridan College's Faculty of Animation, Arts, and Design in Ontario, Canada – the largest arts school in Canada. This fall, the school will begin offering Canada's first degree in game design and another in interaction design.

Sheridan has a number of labs for its animation students, which are available 24/7 via card access. The labs include nearly 200 Cintiqs. "The students tell us that the process feels more organic with the Cintiqs," says Ronni Rosenberg, dean of the Faculty of Animation, Arts, and Design.

The usual tools of the trade are used at the school. In addition, it teaches high frame rate, stereo 3D, and stop-motion film-

making. The Screen Industries Research and Teaching Centre (SIRT) conducts research related to digital workflow technologies and processes, such as virtual production/performance capture, stereo 3D, and high frame rate (HFR) cinema. The 5,000-square-foot studio space in-

cludes a Vicon optical motion-capture system and virtual camera solutions with 2D and 3D output. It also has a 1,300-square-foot postproduction and visual effects lab and a digital cinema test and demo center capable of 2D, 3D, 4K, and HFR projection.

SIRT helped create two new courses within the Faculty of Animation, Arts, and Design, and hosted several hands-on workshops for students. Last year, SIRT was invited to demonstrate HFR 3D test footage at SIGGRAPH 2012 in partnership with project partner Christie. It also signed a Memorandum of Understanding with Ubisoft Toronto to conduct performance capture/virtual production research that will enhance the game development process. Finally, it is planning a HFR 3D project involving researchers from York's 3D FLIC, GRAND, and Christie through the Canadian Digital Media Network.

The primary focus at Canadian-based CG Masters is on production-tested, on-the-job-training techniques that young artists need before entering the professional realm. In fact, this unique school's slogan is "Where Art Meets Technology," and to that end, CG Masters focuses on practical knowledge, skills, and experience, rather than theory, history, and essays.

"CG Masters trains digital artists for a realistic chance at an entry-level job in VFX and animation. We focus our precious study hours developing excellence in tools and techniques our graduates are likely to need in their first jobs," says Nicholas Boughen, senior education administrator.

In regard to tools, Boughen says the institution sees a paradigm shift in tool development that is bringing Side Effects' Houdini into more studios for more diverse uses. Therefore, artists are very likely to benefit from training with this software. "The power, simplicity, and reliability of the node-based architecture make it a no-brainer for our classrooms."

As Boughen points out, real success isn't about "the blinky lights and fancy software – it is relatively easy to learn a new tool once you know one or two others." The real meat of training, he adds, is in production practice and philosophy. "Learning how to approach a new tool and work it into our tool set is a good [practice]."

VanArts (Vancouver Institute of Media Arts), a post-secondary school in British Columbia, Canada, offers training for animation, Web development, game art, visual effects, and more. And, tools are an important part of the education process. "In VFX, we largely focus on tracking new software tools and folding them into the program when our industry contacts indicate that acceptance is reaching a broad enough standard," explains Wade Howie, head of VFX and Game Art at the school.

To this end, VanArts has added Chaos Group's V-Ray and The Foundry's Mari to its list of technologies presented to students in those areas of study. VanArts has also begun transitioning from MEL to Python for Maya scripting, and has increased its Side Effects Houdini classes as part of its overall emphasis on procedural visual effects training.



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Image above: Work by CCPS student Evans Simpson in collaboration with ACI instructor Eric Kachelhofer.



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Education Supplement



Media Design School's Thang Nguyen shows the result of combining tools with talent.

As Wayne Gilbert, dean of Faculty and head of Character Animation at VanArts, notes, advancements in technology are what makes the final image better, and possibly more innovative. Without the right information fed into that technology, it is just a blank piece of paper. "Technology does not create; it enhances what artists create," he says.

Students at VanArts are taught the technology used in studios, but more importantly, they are taught to master the fundamentals of artistic creation, which can lead them to artistic discovery. In the case of character animation, Gilbert says, students focus on learning Maya or are in 2D to draw or learn Harmony from Toon Boom. Some do their assignments in Adobe Flash because of prior training. "We ask them to learn the craft and to deliver their creative vision through technology," says Gilbert.

At the Media Design School in Auckland, New Zealand, a combination of essential and emerging technologies are used to ensure that students have a strong foundation on which to build their knowledge of industry tools. Oliver Hilbert, senior 3D lecturer, equates the school as being similar, in effect, to a small studio: "We can adapt to new technologies with more ease so that students have an understanding of what's just around the corner," he says. For instance, students learn to use the current industry simulation tools, such as Maya Fluids or Houdini FLIP Fluids, though discussion and demos showcasing the IONIC fluid solver or what position-based fluids can do.

Students at the school have access to the Autodesk Content Creation Suites

and Adobe Creative Suite. They also use specialist and proprietary tools, such as Side Effects' Houdini; The Foundry's Nuke, Mari, and Hiero; Panorama's PTGui image stitcher; PixelMachine's TopoGun surface; Blender's CrazyBump; Collada's Xnormal; Pixologic's ZBrush; Chaos Group's V-Ray; CoreCG's MentalCore; and more. Despite the available technology, Hilbert stresses that there is more to learning the craft than learning how to use the software.

"Overall, we are controlled but forward-thinking about how to train students with solid fundamentals yet keep up with industry advances," Hilbert adds.

Gobelins School of the Image in Paris introduces students to 3D and 2D software as they work on various movie projects during their education, including Maya, Flash, After Effects, Final Cut, and Photoshop. Workshops introduce the students to additional programs for specific learning, such as MotionBuilder for procedural animation.

At another French school, Supinfocom, a five-year computer graphics university with campuses in Valenciennes, Arles, and India, art takes precedence, as the students are first taught the very basics and fundamentals of art before they begin applying that knowledge to CGI and animation. For the school's game development program, the students work mainly with Unity. But students in that course of study also must undergo rigorous studies in fine art, which they then apply to their later classes in game development.

At the Filmakademie Baden-Wuerttemberg in Germany, each student has a high-end workstation and access to a large

renderfarm and all established 2D and 3D software. The school also offers access to professional camera equipment from RED, Arri, and Sony, as well as a motion-capture system with 18 cameras for animation, VFX, and previsualization.

According to Marianne Gassner, head of studies, there are 3D printers, a stereoscopic grading suite for finishing and color correction, and a digital cinema for 2D and 3D screenings. In short, the school provides a range of software for the students, and if a tool is required that is not available, a request can be made with the R&D department for it.

The Vancouver Film School (VFS) in Vancouver, British Columbia, offers a robust film and game development program. "The technology our students focus on are the tools that are used to create games – not just C#, C++, Maya, and ZBrush, but actual game development tools like Flash, HTML5, the Unreal Development Kit, and Unity," says David Warfield, head of Game Design. In fact, Game Design students select a game engine for their project, usually choosing Flash, Unity, or the Unreal Development Kit.

In August, VFS will open a brand-new Animation and Visual Effects campus in a 106,000-square-foot, city-owned space in Gastown. According to Marianne O'Reilly, head of Animation and Visual Effects at VFS, every classroom is designed to optimize the learning experience by giving students access to high-powered software, including a leading renderfarm management system and a 280-degree green-screen studio.

"We stress the importance of being industry-led, so we worked with representatives from the local industry to maximize the space and emulate a true studio experience," says Marty Hasselbach, managing director of VFS.

It is clear from talking to a wide variety of education facilities that learning the tools and technologies that are implemented at professional studios is important for students. And while talent cannot be underestimated, neither can the ability to use the latest technical advancements to showcase that talent. ●●

Karen Moltenbrey is the chief editor of CGW.

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