News from **Silicon Hill** Week 2, 06/20/2016

Located at the Promenade on the Peninsula!

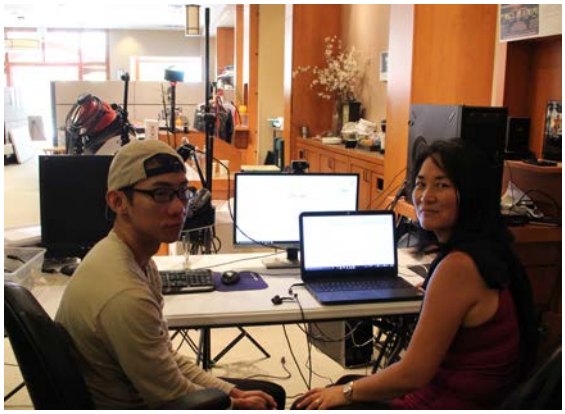
The Sun is Hot, But Our Tech is Cool

We are back with another update for the second week of the summer! Everyone at PVNet had a great week learning, building, and exploring. This edition will contain updates on our classes and projects, and also highlight all the cool technology we have!

Class Updates:

Coding classes

This week, instructor Peijay started teaching coding classes in JavaScript. Programming is essential in today's world, as it is integral to most technology. Everyone should learn how to code, and there is no place better to learn that PVNet. Our students are prepared for work in all fields!



Tutoring for Coding

When students take coding classes at school, they often find themselves in groups of about 25 students with varying degrees of coding experience. When that happens, tutoring is the best way to stay on track and get a good grade. PVNet has tutoring for all of the most common coding languages.

Video Production

The video production team is getting some traction! Instructor Eunice held her first Video Production class this week. The students used After Effects, the industry-standard tool for video compositing, motion graphics design, and animation. They had fun learning simple word animations and exploring the cool effects! These skills will come in handy for our current video project: filming and editing PSAs to submit to PV Transit.

Game Design

In our Game Design class this week, students learned the basics of how to use the industry-standard, professional game engine Unity. They created environments and characters, and had tons of fun blowing stuff up! The students enjoyed seeing the effect that gravity and physics had on their worlds. By the end of the week, they had all created unique first-person shooter games! Game Design, an already enormous industry, continues to grow at an accelerated pace. This industry involves coding, engineering, math, graphic design, video editing, creativity, logic and more! For students who are also in our 3D Virtual Reality Game Team, they learned valuable skills in this class that will help them as they design their own game.

3D Modeling and Animation

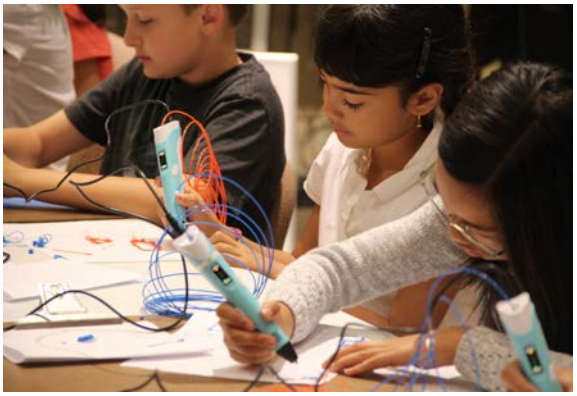
Students in this class learned how to use Autodesk Maya, the industry-standard software for creating interactive 3D applications, such as video games, animated film, TV series, and visual effects. Each student created his or her own scene and animated it. We saw donuts, monster trucks, fruit, and moving people this week! Modeling and Animation also comes in handy for those in our Game Team, as items created in Maya can be transported into Unity to be used in games. Everyone was amazingly creative and focused in class!

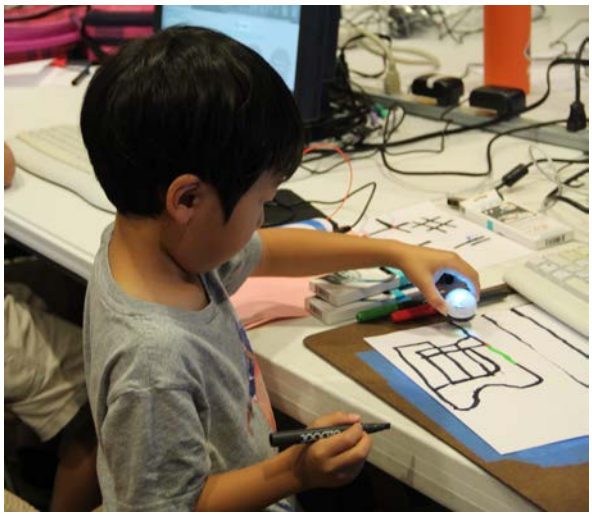
CAD (Computer-aided drafting) classes

This week, we had two 3D design classes: Inventor and Tinker CAD. Both of these software applications help the user create and design products. Inventor software offers easy to use tools for 3D mechanical design, documentation, and product simulation. It is perfect for professional use. Meanwhile, Tinker CAD is a simple, online 3D design and 3D printing tool for anyone to use, and can create jewelry, furniture, toys, and prototypes. Learning to use these two design programs helps students gain experience in design, 3D modeling, and printing. Students showed creativity and logic as they mastered these programs!

STEM University

We had a great week in STEM University, and saw many new faces! The students had a lot of fun exploring many types of technology. They enjoyed working with the small, round Ozobots, and used Java-based block codes to make the bots roll and flash. The students also created art with 3D printing pens (think of a 3D printer that you can draw with), and invented new devices with LittleBits, small magnetic building blocks that help teach electronics, robotics, and coding. During the second half of the week, the students also began using Scratch, a visual, block coding language, which can be used to create art, games, and videos. The students even got a tutorial in Autodesk Maya! Truly a fun-filled, energetic week!





What technology does PVNet have?

We have the most extensive collection of electronics, robotics, software, and virtual reality systems in the South Bay. This gives our students many, many options to choose from as they decide what they want to work on. They have unrestrained access to technology that can't be found anywhere else. So what might *your* kid work with at PVNet?

Virtual Reality

We have not one, not two, but five virtual reality systems at PVNet! Students can work with our four Oculus Rift systems and one HTC VIVE. They learn how to design games for both Oculus Rift and the HTC Vive, using the Unity game engine. One of our new projects this summer is to create, from scratch, a video game that can be played on the Vive.

Oculus Rift: The Oculus Rift is a virtual reality headset that works with any high-end gaming desktop. It looks like ski googles with a pair of screens that display two images side by side, one for each eye. A set of lenses is placed on top of the screens, refining the pictures, and creating a stereoscopic 3D image. The goggles also have embedded sensors that track eye movement, monitor the wearer's head motions, and adjust the image accordingly. All this combines to create a stunning, mind-blowing experience. You feel like you have been transported into an immersive 3D world!

Medical uses for Oculus Rift and Virtual Reality Technology

The company Vivid Vision has developed a way to use virtual reality technology to help people with lazy eye conditions. They can train their eyes using targeted games while wearing the Oculus Rift. This is an incredible breakthrough for people who suffer from amblyopia and strabismus! Read more about it here: http://www.diplopiagame.com/

HTC Vive: The Vive headset is very similar to the Oculus, but also comes with hand-held motion sensors and wall-mounted sensors. This allows the user to walk around in a fixed area while using it, something that the Oculus doesn't offer.

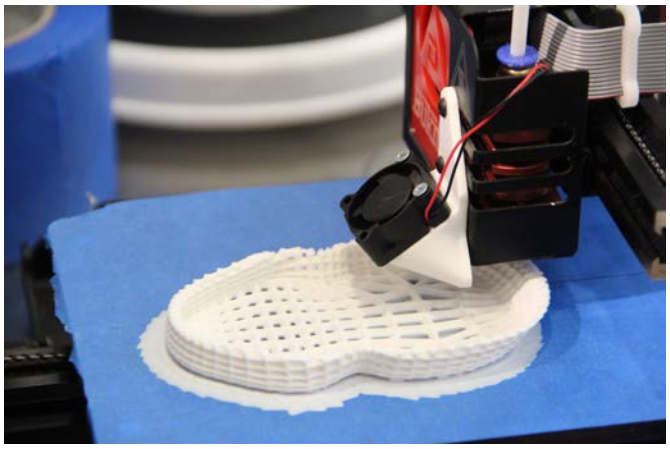
Both the Oculus and the Vive are super cool and we are happy to have them! PVNet is also getting ready to purchase a second Vive, which will greatly enhance our Game Design Program!

Laser Cutter

We recently got a new, powerful Full Spectrum P-series CO2 laser cutter, which can engrave on both acrylic and wood, and can read any Windows application that can print to a regular printer. This will allow us to create unique, artistic laser cutouts. We are looking forward to using it soon!

3-D Printers

Our facility has seven 3D printers in varying sizes. This allows us to print both student and workshop projects, such as parts for Prosthetic Hands for Kids. Students can learn how to design and print items in our Inventor and Tinker CAD classes! Jewelry, vases, art, and signs...the possibilities are endless!



Project Updates:

3-D Game Design Team- Last Saturday, our new game design team met for the first time at PVNet. The team's goal is to create a video game that can be played on the HTC Vive by the end of the summer. They will do all the coding and layout in Unity game engine, and create models, characters, and environments in Autodesk Maya. In the team's first meeting, they played existing Vive games to get inspiration and also brainstormed about possible game ideas. It was great fun and we can't wait to start working!

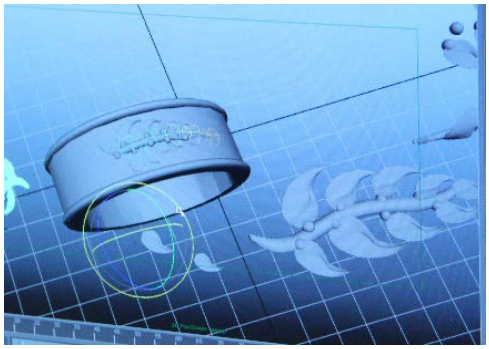
PV Transit PSA Videos- The team has been assembled for this project! Members are currently receiving training in video editing softwares After Effects and Avid. Along with mentor Eunice, they will soon develop ideas and plans for filming. We are so excited to see what they create!

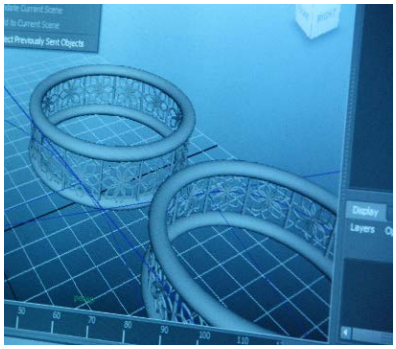
Intern Updates

Our interns, ranging from 13-18 years old, have access to all the technology available at PVNet, and can take any class during the summer, at any time they want! In addition to learning about technology, the interns also assist in setting up and running PVNet.

So what are some of our interns working on? Read on to find out!

Lauren K. is using Autodesk Maya to create intricate, detailed jewelry. She has just completed a ring with delicate leaves, and is currently working on a beautiful band cut out with flowers and a pair of earrings. Her final designs are printed using the 3D printers in our facility.





Brett, an excellent artist and VR designer, has designed a 3D model of Han Solo frozen in carbonite! He can also add student faces into his model. Star Wars fans will go crazy! Truly a work of art!

Josh will be helping instructor Tommy design and engineer 3D games for our HTC Vive. He also assists with setting up PVNet's facilities and computers in the morning.

Lauren L. is in charge of writing this weekly newsletter and taking picture of the classes and events around PVNet. She has also been learning game design, 3-D animation and modeling, and video production.

Michael is bringing his filming and editing skills to our PV Transit project. He also takes videos of our classes and events, which will be seen in our newsletter next week!

Daniel, an up and coming 3D printing junior technician, has received several hour of training from PVNet intern and college Engineering major Raul about the Bukito 3D printer, Cura slicing software, and Retetier host printer management software.

Ian has designed hooks that are now being used throughout PVNet to hold nametags. He is also working on designing headphone holders that will be placed throughout the facility. Functional and fun, now that's amazing!

More updates about our interns will come, so stay tuned!

Olympic Day Fair

Last Saturday, PVNet came to the fair! Tons of people stopped by our tables to try out the 3D pens, talk to our interns, and see our technology and 3D art. We love reaching out to our community!

Fund Raising

Families and students have turned out in a wonderful show of support to assemble 3D printed prosthetic hands for children without hands. We are almost halfway to our goal for assembling and preparing 40 prosthetic hands to donate, but we still need help! Register now for this class at http://www.pvnet.com/ or sponsor a hand by donating $160 (tax deductible) to help with expenses for this project.

Thanks for reading! See you next week!

Written by: Lauren Leung
PVNet News Archivist Intern
Summer 2016