



Located at the Promenade on the Peninsula

Summer fun without the Sun

Another week has gone by, and it has brought so much new action and activity at PVNet. Our center was constantly bustling with energy and people, and we loved it! We are so happy to see that we are reaching out to more and more of the community each week. Read on for updates on all our classes, camps, and projects, and come by the Promenade soon to visit us!



Announcements

We Are Excited to Welcome Our New Engineering Instructor: Kirithika Sathyamoorthy!

Kirithika is a graduate with a masters in Electrical Engineering from San Diego State University, and she has extensive experience and expertise in Robotics, UAV (unmanned aerial systems), Drone design & assembly, design of wearable sensors and wireless communication, automations, real time Operating Systems, and embedded system design. She is also an expert in programming languages C, C++, C#, Riverbed, Python, MATLAB, Java, J2EE, Verilog or VHDL, Perl/shell- scripting, and Database. She is an Oracle certified Java Programmer.



Kirithika will be working with Senior Engineering Instructor Don Wahlquist to teach our new VEX IQ Robotic classes, and lead our three new VEX IQ Robotic teams. Don has just completed a Carnegie Mellon Robotics training course, and he and Kirithika have been preparing all this week for our **Robotics classes, which will start in two weeks. Register now!**

Register now at **Pvnet.com** to be on a Robotics team! We will be offering three middle school teams this year, and are also going to start hosting high school teams, starting in 2017.

We are very happy to have Kirithika and her experience here at PVNet!

ATTENTION SOUTH BAY HOMESCHOOLERS: TOWN HALL MEETING ON JULY 30TH- We are preparing to offer classes for homeschoolers, and want to hear from you so we can support your needs. Come help us understand what your student's school curriculum is, what schedules and class times work for you, and how we can formulate the classes to fit your budget. **The meeting will be held on July 30th, from 4pm-5:30pm, at PVNet. We hope to see you there!**

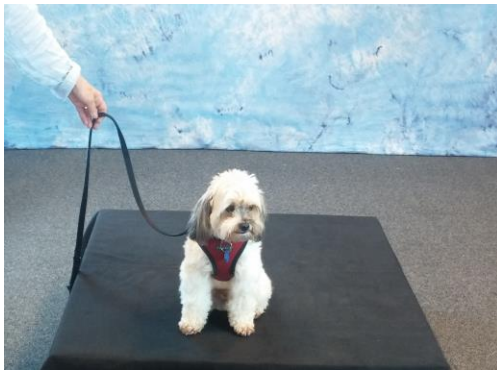
PROSTHETIC HAND WORKSHOPS CONTINUE-

Classes will be held weekly on Monday, Wednesday, and Friday. **We are giving back to the community and we need your help!** Come in with your family and assemble a low-cost prosthetic hand that will go to a child in need. If you can't come in to make a hand yourself, you can still help! Sponsor a hand by donating \$160 (tax deductible). Remember, our goal is to make 40 hands by the end of the summer and we need all the help that we can get!



Dog Photoshoot

On Saturday, we held our annual free professional dog photoshoot. Owners brought their pets to our location at the Promenade, where we had a photo studio set up, and photographers on hand. The event lasted from 10am-12pm, and was enormously successful. After taking the pictures, PVNet also offered to retouch them, to ensure enhanced quality, and will email them to the owners. Thank you Lauren and Michael for being our awesome photographers for this event! We really appreciate your help. This was a great community event, and we were very happy to meet so many great dogs (and their equally great owners).



Classes

STEM UNIVERSITY

Our STEM University class was very popular this week, filled to the brim with new and returning students. Led by instructors Mira, Aysel, and Sam, the students had tons of fun while learning about all sorts of cool technology. What sort of adventures did they have this week?



3D Design and Printing

Our students are amazing inventors! The level of 3D design and creativity grows weekly, as our students just can't get enough of Tinkercad and 3D printing! It is very rewarding for them to be able to hold and touch the designs that they created on the computer. We had Tiffany creating a Minnie Mouse, Zach making bunnies, RJ designing an AT-AT Walker from Star Wars, and Lucas building egg-shaped figures.



3D Printing Pens

Artistic talent is really running free in STEM University right now! Our students enjoy using our 3D printing pens, and have been drawing up tons of cool things, such as trees, buildings, cars, and planes.

How does it work? A 3D pen is a handheld 3D printer. It functions by heating a plastic filament to its melting temperature and then forcing it out through an extruder. 3D pens can create designs on existing objects, draw in thin air, and repair other 3D printed objects.



This week, students worked hard and also continued to improve their modeling skills in Autodesk Maya, programming skills in MIT's Scratch and with Ozobots, and engineering skills with LittleBits. We love to see the learning and improvement that the kids go through over the course of a week, or several weeks. They have amazing, bright young minds!

What do our students have to say about this week?

Zach says, "This week was super fun because I got a Darth Vader figure and even though I dropped it and the head broke off, I glued it back on. And because I printed four Egg-Win Bunnies."

Lucas says, "My favorite part of the week was using the 3D pens. I made a house."

RJ says, "I liked Tinkercad, because I made an AT-AT (from Star Wars) and a bunch of other cool things, like a laser shotgun." (He wants to make sure people know that the gun is non-functioning.)



Brendan says, "I liked doing everything this week because I had never really seen any of it before."

Nathan says, "My favorite part of this week was using Scratch because you can make games and move objects and make them run around. It was really fun and I want to make more games."



VIDEO PRODUCTION CAMP

Who wants to watch movies when you can make them? Led by instructor Bolton, this 10am-4pm camp covered everything about movie making, from how to write a good script to the importance of a movie's sound. First, the campers learned about the job of movie producer, and about the amount of work that goes into making a movie.

Then, the campers practiced writing scripts and drew story boards in preparation for filming. They learned about video cameras, and how to operate them. The students used green screen as they filmed, and then learned how to edit their clips over the course of the week, and how to splice audio. They also watched many cool videos of behind the scenes on movie sets and clips from famous movies. It was a very fun week, with tons of new knowledge gained by all.

Job Description: So, what do Movie Producers do, actually? This is a complicated question because their duties vary widely. Generally, they supervise the movie from start to screen. Usually, an Executive producer will develop an idea or script with a writer and secures the necessary rights to make a movie. He or she will then hire several other lesser producers, and those producers will find a director, supervise casting, and assemble a crew. Additionally, the Executive producer



controls the budget and coordinates the post-production work, which includes everything from editing, to music, to marketing. If you watch the Academy Awards, the trophy for Best Picture gets handed to the producer of the movie, not the director or actors.



Tech Check: How do green screens work?

Green screens are used in video and photography, in superhero films and weather forecasts. It is a part of the process called Chroma key. Chroma keying, or color keying, is the process of singling out a particular color in an electronic image and then using computer software to make that color transparent. This allows another image to show through. Any color can be isolated and deleted with Chroma keying, however bright green is usually used because actors will rarely wear a color similar to it, making it easier for software to identify which parts of the image to delete.

ANIMATION AND 3D MODELING/ GAME DESIGN CAMP

Trying to decide if you want to be an animator or a game designer? Be both at our weekly 10am-3pm camp! In the morning, our students learned the basics of Autodesk Maya, and spent their time creating models and small animations. Then in the afternoon, they learned how to use Unity game engine, and even had the option of importing their Maya models into the game that they created in Unity. Students can also choose to sign up for just one of the weekly Maya and Unity classes.



Unity in the Industry

Have you heard of the game Pokémon GO? Nintendo's extremely popular new mobile game is topping App Store charts right now, and people are playing it all over the globe. The game allows players to capture, battle, and train virtual Pokémon who appear throughout the real world. And it was made with Unity! In fact, almost all mobile app games are made with Unity, and the platform is widely used among indie game designers.

Vocab Check: Indie games, or Independent games, are developed by individuals, small teams, or small independent companies; they are generally not financially backed by video game publishers. Minecraft is an example of an Indie game that was enormously successful.



Why do designers like Unity? For one thing, you can download a version for free online. It is also good for designing all types of games, in 2D or 3D, and is multi-platform.

Unity game engine was used to create the following popular games: Temple Run, Slender: The Eight Pages, Slender: The Arrival, Monument Valley, Angry Birds 2, Cities: Skyline, Pillars of Eternity, Surgeon Simulator 2013, Rust, Guns of Icarus Online, and Ori and the Blind Forest.

Projects

VIDEO PRODUCTION TEAM

The project is officially underway! Our team met this week to discuss the project, which is to create short, 15 second video PSAs for PV Transit. These videos will be played on the PV Transit website, on local television channels, and on the buses themselves. The team laid out ideas for the videos, started a timeline, and wrote rough drafts for the scripts. They also discussed member roles and researched about items to include in the PSAs. It was very exciting to start working on the videos and begin the creative process. Their progress will continue to be reported as the summer progresses. Good luck, team!



GOVERNMENT INTERNSHIP PROJECTS



PVNet has developed two exciting, college-level projects in collaboration with the City of Rancho Palos Verdes Public Works Department. The high school students who work on these projects will utilize UAVs (Unmanned Aerial Vehicles) to help collect data that will be reported back to RPV's Public Works Director. The project team met for the first time this week. They discussed the projects, and began learning the basics of UAV operation and design.

FEMA (Federal Emergency Mapping Agency) Project

Cities are frequently turning to camera equipped UAVs for clearly documenting buildings in 3D modeling systems. It is the becoming the new high tech method of choice to help cities comply with Federal Emergency FEMA requirements for replacement funding in case of catastrophic disasters.

Hailed as an emerging technology, the use of UAVs in in analysis of open spaces is critical to the future of aerial imaging and 3D building rendering. Students will have the opportunity as a group to build, operate, and deploy a specially equipped UAV. They will learn the techniques and software behind 3D images. The students

will fly the UAV over designated buildings that the Public Works Director identifies, then process the raw imagery using interpretive software.

They will also meet with professionals in the remote sensing field and processing the data together to develop 3D modeling data. Finally, they will submit a report of their research and findings to the City of RPV.

Environmental Study Project

Students will work in a group on this project to build, operate, and deploy a specially equipped UAV. They will learn the science behind near infrared technology. Near infrared technology is widely used to monitor the condition of environments, “because it meets the criteria of being accurate, reliable, rapid, non-destructive, and inexpensive”, according to Donald Burns, in his Handbook of Near-Infrared Analysis 2. The use of UAV’s in open space analysis is critical to the future of farming and sustainability.

Students will fly the UAV over a section of trees and vegetation identified by the Director of Public Works, and process the NIR raw imagery using interpretive software. Then, the team will meet with an arboriculturist to determine the condition of trees and other vegetation, and assess the value and relevance of the study. Finally, they will deliver the results in a report to the Public Works Director, which will discuss the overall project benefits, and develop a best practices document for this process.

These two projects are very advanced and high-tech, and will take several months to complete. We are excited to have this opportunity to do research for Rancho Palos Verdes’ city government!

Interns

Aysel has started helping lead our STEM University classes! We are so happy that she can take on this role at PVNet. She is also still working for the Game Design Team as a modeler, and is writing the scripts for the PV Transit PSAs.

Lochlan and Michael S. were in the Video Production camp this week, and had a lot of fun as they filmed and edited their own film from scratch. Lochlan also continued working on his model of a cartoon mouse in Maya.

Joshua worked on his model of a watchtower for the Game Design Team this week.



Michael K. took part in the Video Production camp, along with filming for his weekly video and brainstorming ideas for the PV Transit video. He will be the Video Production team’s editor.

Tina is designing a leg prosthetic for dogs, which is amazing! She is currently studying discuss dog anatomy and 3D design. We are super excited to see her final product!

Leo has designed his own game on Unity for a competition, which is very impressive. He will be able to play his game in both 2D and 3D.

Brent and Zach are still working with our EMOTIV Epoc+. While there are many new exciting ways to use EEGs, like as a lie detector or a game controller, the boys are currently working on programming the headset to identify different people based on brain waves, a form of biometric identification. This is cutting-edge technology and we are so happy that our interns are working with it!

Eric and Kachi are working with the Sense 3D Scanner, which uses laser technology to create 3D renders of objects and people. Eric also helps **Sean** track intern and volunteer hours.



Thanks for Reading! See you next week!



(And may the force be with you.)

Writing and Pictures by: Lauren Leung

Video by: Michael Kare

Proofread by: Aysel Atamdede

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