Eurocom Education Program User Profile

Blending the lines between Virtual and Augmented Reality: An innovate approach towards Architecture

The Profile

Name: Leo Liu
Education: Architecture
School: University of Waterloo
Field of Study: Architecture
Program: Architecture Coop Program
Coop Location: Rome, Italy
Eurocom Computer: EUROCOM SKY X9E2

More on Leo:

A young renaissance man, Leo is getting the most he can from Waterloo's Architecture program by exploring everything around him. Leo takes great pleasure in sampling all the world has to offer, and every moment is spent trying something new. During his architecture studies, when he wasn't delving into the wonders of Rome (for his CO-OP placement), Leo developed passions for videography, music composition, photography, animation, 3D rendering, gaming, and more. His passion for exploration imprinted itself on Leo's studies as well.

As he begins to flush out his thesis, Leo is blending the lines of Virtual Reality and Augmented Reality to create and explore new, innovative designs while drawing influence from everything within his reach and beyond.

Here are some renderings of one of his architecture projects
(Photos are attached as they're quite large)

Here is a stunning 4K video of Leo's stay in Rome, made entirely by him.

Waterloo's Architecture Program:

Waterloo's Architecture co-op program is one of the best in the country. Students get two years of real-world experience, they're paid for their co-op work (as much as $10,000 USD per semester), and most placements are abroad! "The program I'm enrolled in allowed me to work in many offices around the world every other term. This provided me great opportunities to practice my Interests and explore different cultures during my free time." – Leo Liu

Back at home in Ontario, Canada, Waterloo has a dedicated a small campus in downtown Cambridge to the faculty of architecture. Even more impressive, the school has a permanent presence in Rome, Italy. Fourth-year students are given the chance to immerse themselves in one of the most prominent, architecturally-live cities on the planet and to learning from Italian professors, critics, and architects. Students emerging from this program will have a wealth of knowledge and plenty of inspiration to begin their careers, and Leo is having a blast taking it all in.

You can learn more about Waterloo's Architecture Co-op Program here: https://uwaterloo.ca/architecture/co-op

The Teacher: Phillip Beesley

Currently, Leo is developing his thesis with the guidance of practicing architect and Waterloo professor, Phillip Beesley (https://uwaterloo.ca/architecture/people-profiles/philip-beesley). An author of eight books, recipient of several awards, and developer of the Responsive Architecture Movement, Professor Beesley is able to provide Leo with a window into a new and blossoming architecture movement. Responsive Architecture is the development of structures which physically respond to environmental stimuli such as light and temperature changes.

You can learn more about Professor Phillip Beesley here: http://www.philipbeesleyarchitect.com/

Leo's Thesis:

Waterloo's Architecture program offers an unbridled amount of flexibility and exposure for students. As such, Leo's thesis can freely change has he continues to develop his skills and experience in the discipline.

"My thesis is currently directed towards the transition of an existing space into a space of distributed intelligence, and I am researching into the design, theory and the technical aspects of this transition. In doing so, I hope to achieve an idea of what a futuristic space will look like, a plan of how we will achieve it, and to develop a tool with which we can visualize it. There are many ways to do this, but I am currently looking into the creation of a narrative that tells a story about the transition of an existing city, where I will look at themes such as the internet of things, technological limitations, identity, architectural consciousness, unpredictability, appropriation of information data, and user privacy." – Leo Liu

In order to accomplish this transformation of architectural spaces and the simulation of future projects, Leo currently believes the solution lies with Virtual Reality, Augmented Reality, Unity [a multi-platform space development engine], and even unreal Engine 4 [a complete suite for game development].

The Technology:

Virtual reality is all the rage these days. While there is debate as to how influential the technology will truly be, Universities and colleges have a major stake in the technology. Mostly using it to enhance the quality of experiential education, these institutions can offer students a new platform with which to explore educational content in an immersive context. However, there is another side to the virtual reality coin: augmented reality (AR). Leo is exploring the uses and influences of both sides of the artificial reality coin to enhance his architectural abilities.

For those of you unfamiliar with the technology, augmented reality is a form of visual technology that layers computer-generated texture on top of an existing reality. In other words, it can overlay 3D CGI on the real world. You've seen it if you've played Pokémon GO, but in the case of architecture, it provides amazingly practical enhancements to the representation of the building and inner space designs.

Applied to Leo's thesis, these tools will allow Leo to examine current cities and buildings and then simulate the transformations of these spaces and buildings to scale. The benefits here are substantial, not only for the practicing architect, but to other collaborating parties and the clients funding these transformations.
Leo's work is definitely something for architects with fingers on the pulse to keep an eye on.

Leo's Equipment

Leo has a lot on the go, and his nomadic nature requires a powerful mobile computer that can keep up with him and his work! Leo's interests and studies require the use of demanding software and, as such, he has chosen to use Eurocom's SKY X9E2 – one of the most powerful laptops in the world. Here's a list of some of the programs he uses to follow his passions:

- Videography - Adobe Premiere and After Effects.
- Music Composition - Protools with MIDI input.
- Photography - Adobe Lightroom
- Architectural renderings – "I model with Autodesk Revit and Autodesk 3ds Max. I then render it out with Vray for 3ds Max and post process with Adobe Photoshop and Illustrator. I am also starting to learn processing, unity, and UE4 for my thesis research." – Leo Liu

"My video editing and 3d modeling/rendering demanded processing power that my old laptop could not provide. I decided to pick Eurocom because it provided the best value in terms of performance for my money, especially with the Education program discount."

Leo's EUROCOM Sky X9E2 here: http://www.eurocom.com/ec/configure(2,385,0)ec

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