

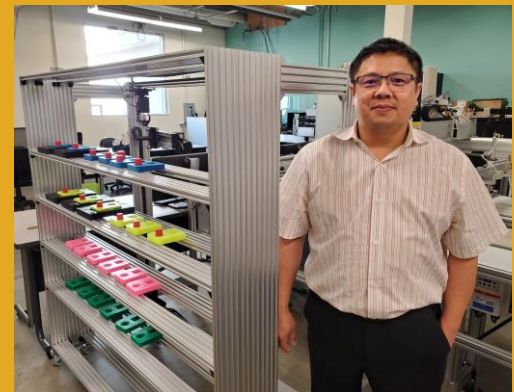


Spring 2023

The Vy and Timothy Li Lab for Industrial and Systems Engineering Overview and Update

The Vy and Timothy Li Laboratory for Industrial and Systems Engineering has been revamped over the last 2.5 years to enhance its reliability, appearance, and effectiveness for teaching and research. A former student, Mr. Tom Pham, proposed and implemented the plans while also redesigning and teaching the core ISE Lean Integrated Manufacturing course. Recently, the lab received a naming gift from Vy and Timothy Li and is now officially known as the **Vy and Timothy Li Laboratory for Industrial and Systems Engineering**.

Consequently, the lab has some amazing new equipment that will make things faster, easier, and better. For example, there's a full-scale conveyor system that helps optimize production. It's super-fast and efficient so that products can be moved quickly and easily between workstations. The lab also now has a new database management system which will help keep everything running smoothly. In addition, the lab now has some state-of-the-art robots that can help automate manufacturing processes. That means less work for people and less chance for errors, which is always good. And let's not forget about the 3D printers! These amazing machines create prototypes and parts on demand, which means less waste and a more sustainable approach to manufacturing. Finally, the lab has some new CNC machines that will make cutting complex shapes and parts with high accuracy a breeze.



Mr. Tom Pham, the Vy and Timothy Li Lab Manager, with ASRS he designed and built – one of Tom's innumerable accomplishments in upgrading this lab.

Here's a rundown of what's new:

1. The lab upgraded its conveyor operations, robot systems, and inspection station to wireless communications and control for better security, safety, and reliability.
2. We purchased a state-of-the-art suspended Omron Hornet 565 robot and SmartVision system. The Hornet 565 is a high-speed and versatile pick-and-place robot that helps optimize production processes and reduce waste in lean manufacturing by reducing manual labor and the likelihood of errors or damage to products. Equipped with safety features, it is ideal for use in manufacturing facilities.
3. Omron awarded the lab a grant to purchase an Omron LD series mobile robot. The Omron Mobile Robot operates autonomously in dynamic environments, streamlining material

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The Vy and Timothy Li Lab for Industrial and Systems Engineering Overview and Update (cont.)

handling operations, reducing manual labor, and decreasing the likelihood of errors or damage to materials. Its versatility makes it well-suited for a range of lean manufacturing applications, including material handling, inspection, and quality control.

4. Our SCARA robot is a high-speed and versatile robot used in lean manufacturing to optimize production processes and reduce waste by automating routine and repetitive tasks. Students learn how it can improve production efficiency, reduce lead times, and help to detect and correct defects early in the production process, improving product quality and reducing waste.
5. An Automated Storage and Retrieval System (ASRS) has been designed, built, and installed to enable the loading and unloading of pallets from the conveyor. (Tom is standing beside it on Page 1.)
6. The lab's teaching program now includes 4 (and soon to be 8) new 3D printers, which are important tools in lean manufacturing for optimizing production processes and reducing waste. 3D printing creates prototypes and parts on demand, reducing the need for stockpiling inventory and minimizing waste. It also allows for quick customization and iteration of designs, reducing the time and resources required for customization. Students learn how, additionally, 3D printing reduces waste and improves sustainability in lean manufacturing by using only the necessary amount of material to create a part. They also support several 3D printing faculty research agendas.
7. The refurbished room has a "showplace" look and feel, making it ideal for ISE open house events. It also houses advanced equipment that provides hands-on experience in the application of lean principles and supports the development of new technologies and practices for industry.

Going forward: We're thrilled to welcome students and visitors to the "new" and much-improved CIM – Industry 4.0 – Lean Manufacturing teaching and research lab this year. If you're interested in taking a lab tour or attending an open house event, please get in touch with Louis.Freund@sjsu.edu.

Before you go, see A few Photos: Next Page.....



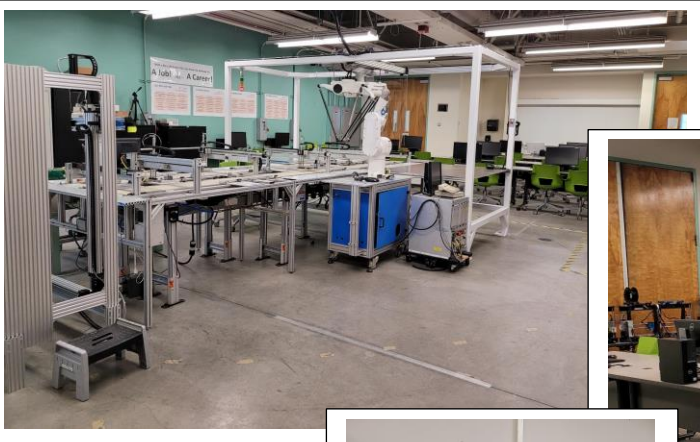
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The Vy and Timothy Li Lab for Industrial and Systems Engineering Overview and Update (cont.)

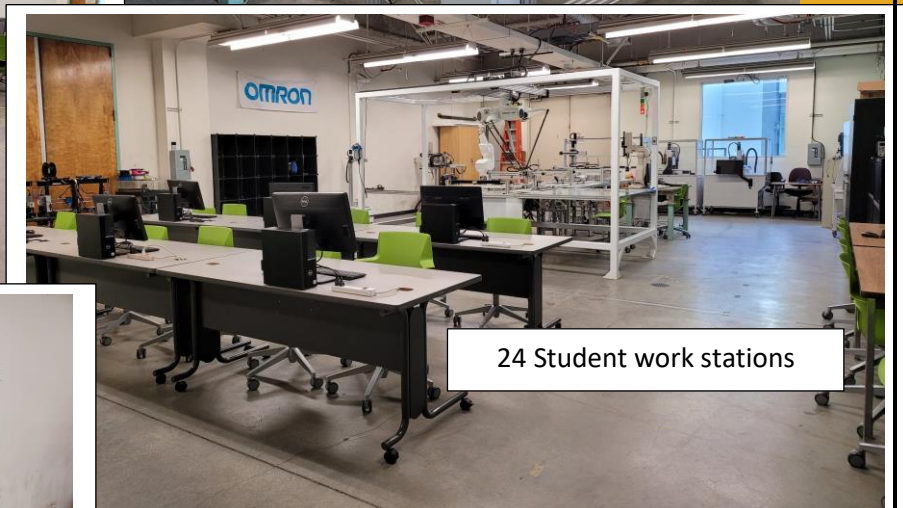
Recent Li Lab photos



Omron Hornet robot



Automated storage and retrieval system



24 Student work stations



Omron mobile robot