



Russel Bradley

Mechanical Engineer | Manufacturing | Industry 4.0

Phone: +65 8335 1694

E-mail: Russel@RB3DPtechnology.com

Website: www.RB3DPtechnology.com

LinkedIn:
<https://www.linkedin.com/in/russelbradley/>

Certifications



This is to certify that
Russel Bradley
has successfully completed the Siemens Digital Industries Software
certification exam requirements for
Solid Edge 2019 Associate I
awarded on October 15, 2020

John Miller
Siemens President of Maintenance Engineering
Siemens Digital Industries Software

Dan Saylor
Solid Edge Product Manager, Solid Edge Product Development
Siemens Digital Industries Software

Certificate ID: 486ccbd0



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Siemens Digital Industries Software

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Certificate ID: eafca0d2



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Siemens Digital Industries Software

Dan Saylor
Solid Edge Product Manager, Solid Edge Product Development
Siemens Digital Industries Software

Certificate ID: c399d703



Internships



Structo

**Automation Engineer
Intern**

Delivering world's
first fully automated
robotic 3D printing
production line



**Fusion Catalyst
Intern**

Fusion 360 Campus
Evangelist

LEXIKAT

**Data Analytics Algorithm
Intern**

Designed a text data
analysis algorithm for
Bahasa Indonesia in
Python and C++



SolidWorks Student Leader

SolidWorks Campus Evangelist
Certifications | Workshops

Teaching

2.853/4: Introduction to Manufacturing Systems (MIT Fall 2022)

ME2102: Engineering Innovation and Modelling (NUS AY20/21-S2)

ME2162/TME2162: Manufacturing Processes (NUS AY20/21-S1)

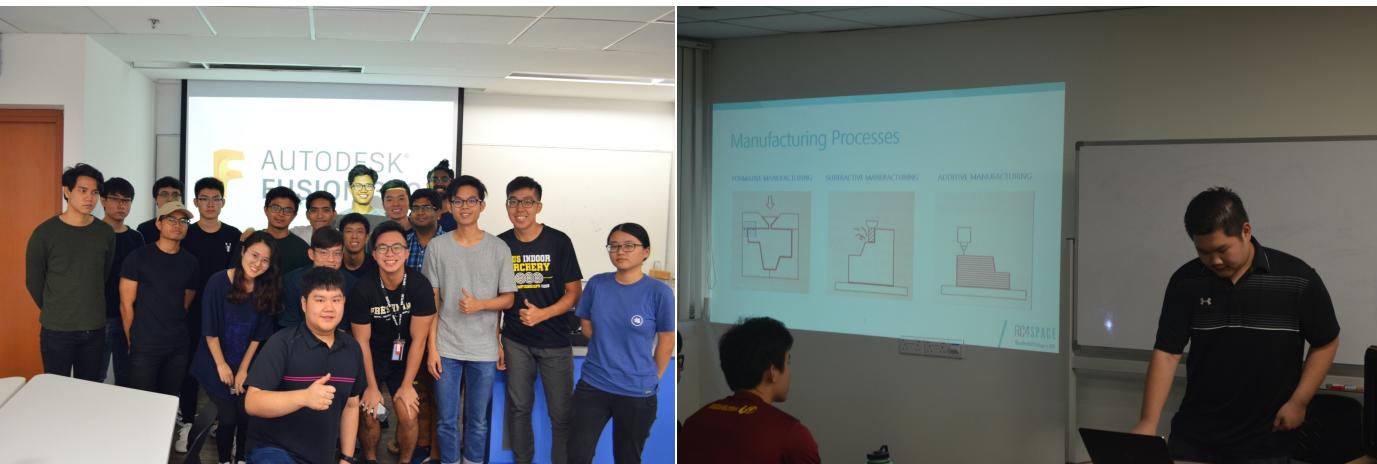
EG2301: Case Studies in Innovation (NUS AY20/21-S1)

EG1311: Design and Make (NUS AY19/20-S1)

EG2301: Case Studies in Engineering (NUS AY19/20-S1)

CS1010E: Programming Methodology I (NUS AY18/19-S2)

Other Various Workshops on CAD, 3D Printing and Manufacturing



A factory for FrEDs at MIT

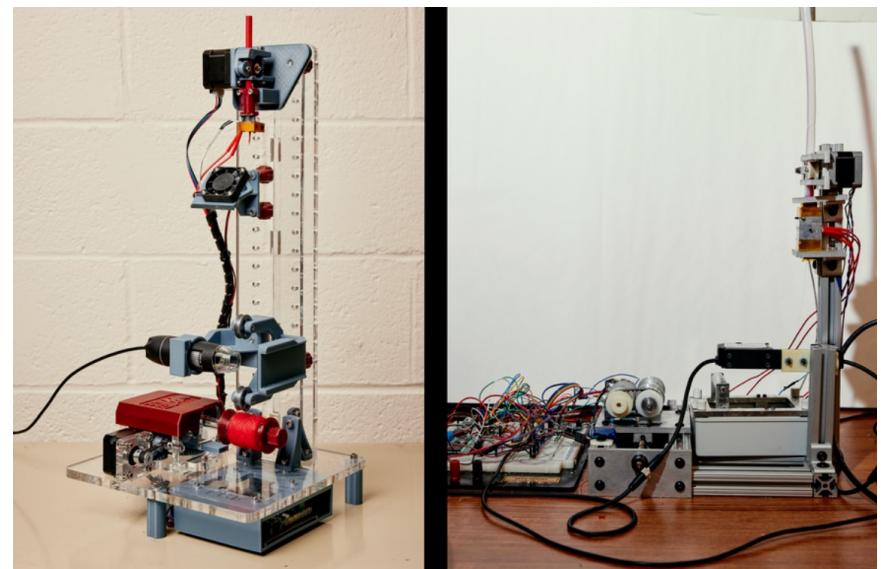
Graduate students create on-campus assembly factory for fiber extrusion devices.

 [Watch Video](#)

Becky Ham | MIT.nano
October 5, 2022



Designed and built – entirely within an MIT lab – a factory for smart manufacturing educational devices (FrED) as part of a long-term collaboration with Tec de Monterrey to nurture leaders in manufacturing. FrED is a low-cost, data-rich desktop fiber extrusion system that mimics optical fiber manufacturing process. It will be shipped to learners across the world to teach concepts related to process control, sensors, machine learning, and manufacturing processes. At the same time, the factory will be used as a learning facility to teach manufacturing courses such as process control and manufacturing systems.

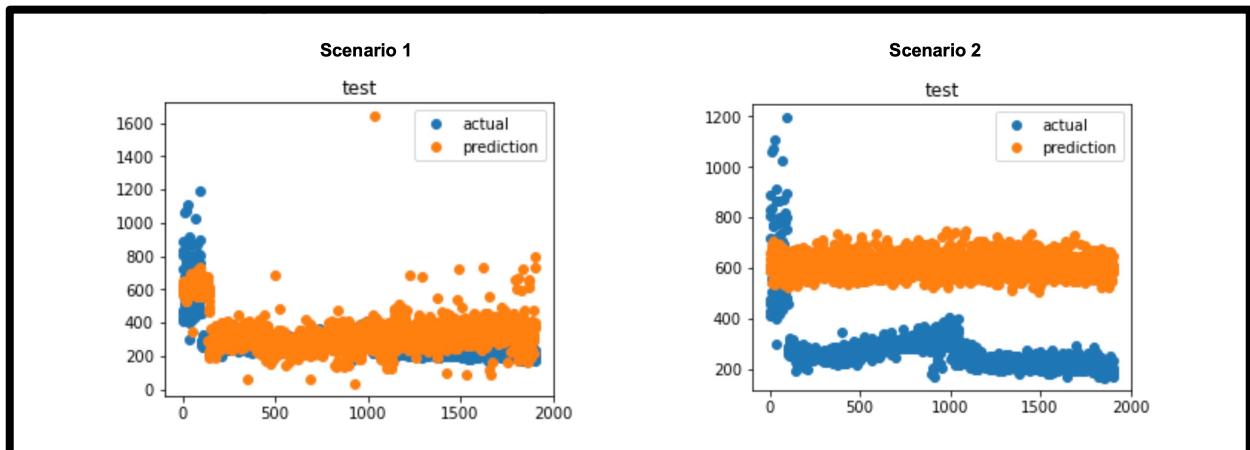
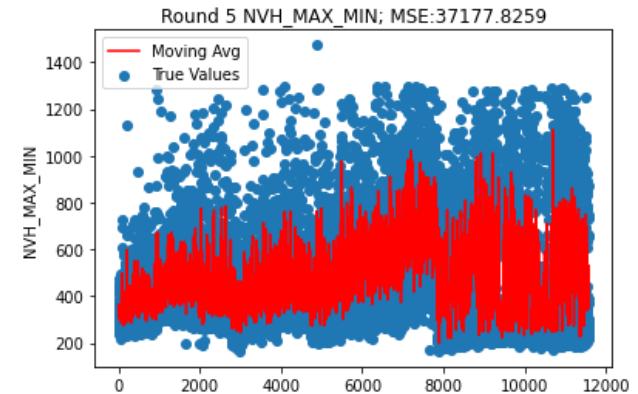


<https://news.mit.edu/2022/factory-for-freds-mit-1005>

Engine “Virtual Quality Gate”

- In collaboration with MIT MIMO, sponsored by an automobile manufacturer to develop their data analytics strategy in the engine assembly line.
- Applied research on building a “Virtual Quality Gate” predictive model with assembly data to identify process drifts and defects in the assembled units.

<https://mimo.mit.edu/research/>



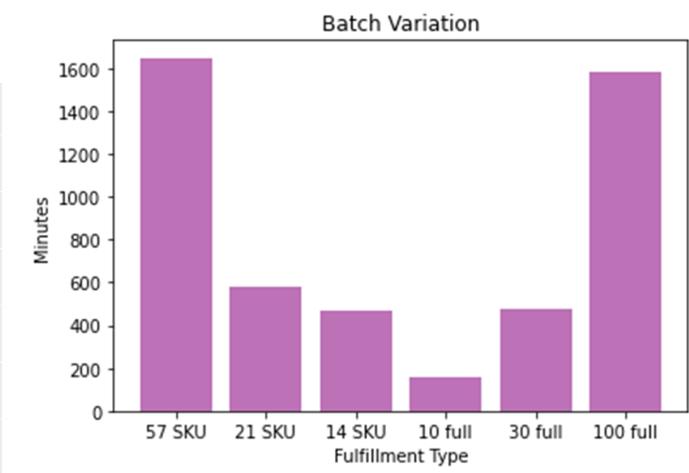
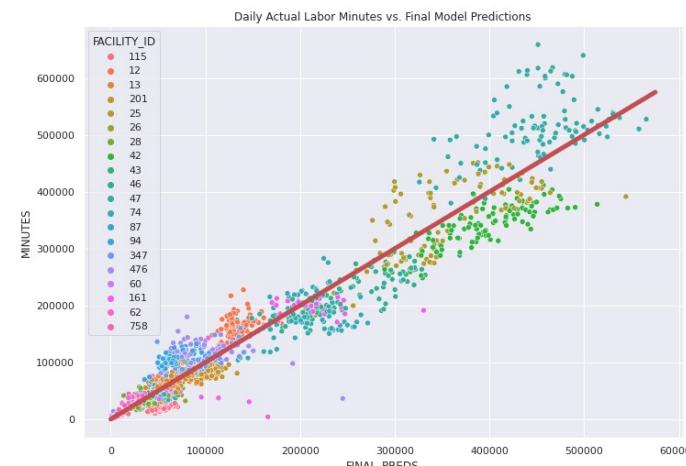
Warehouse Labor Activity Costing Using Predictive Machine Learning Models

- Partnering with Lineage Logistics to define a quantifiable model on warehouse labor activities so that they can charge their customers accurately.
- We used aggregate warehouse transactional data to predict the daily staffing and costing of a warehouse and obtain coefficients to quantify activity costs.
- We quantified customer orders with actual costs and found that an order with high SKU variation is significantly more expensive than an order with a higher volume.

Warehouse Operations Transaction Data						
Date	Time	Facility	Customer	Pallet ID	SKU	Pick Type
Date	Time	Facility	Customer	Pallet ID	SKU	Pick Type
Date	Time	Facility	Customer	Pallet ID	SKU	Pick Type
Date	Time	Facility	Customer	Pallet ID	SKU	Pick Type
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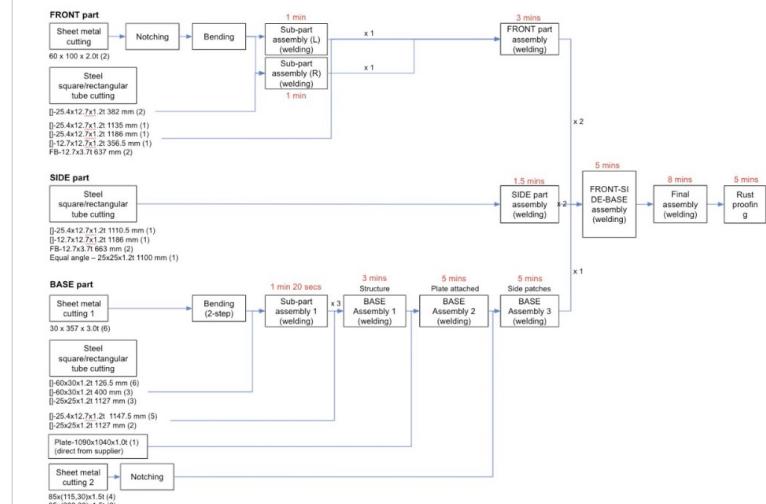
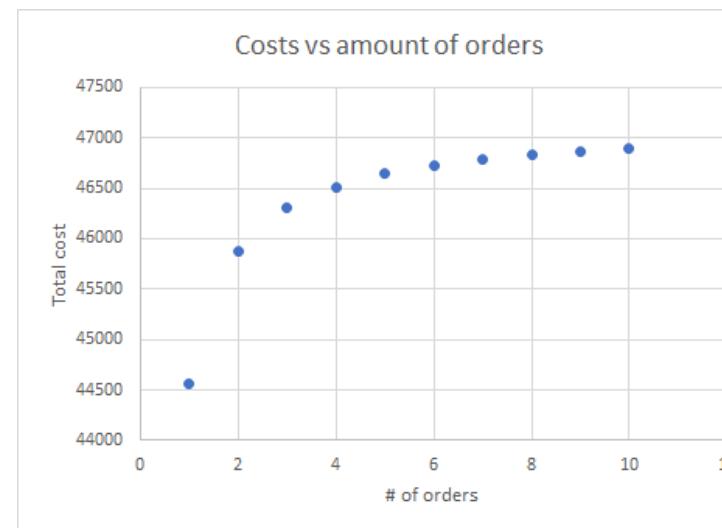
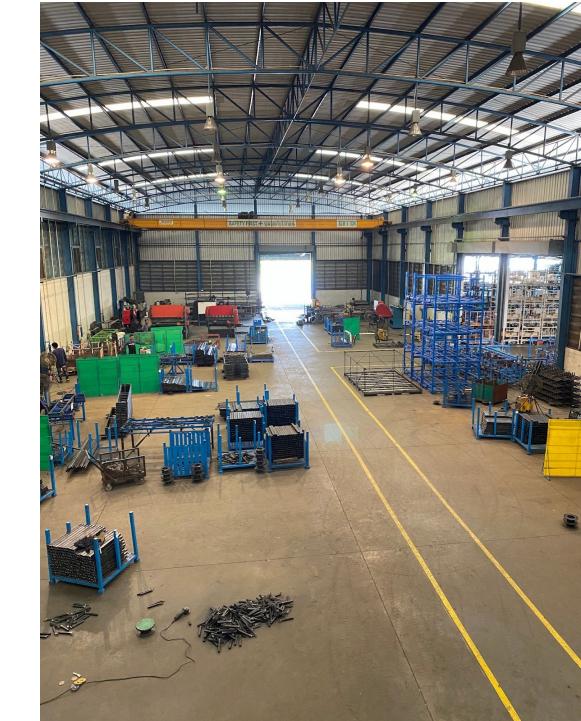
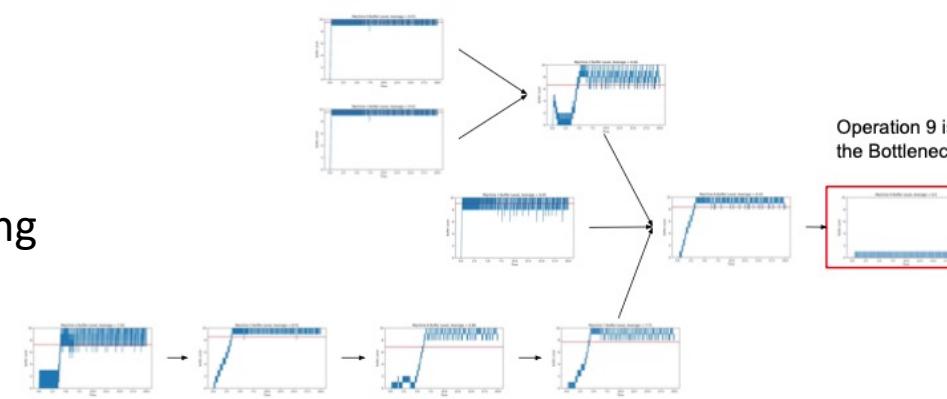
Daily Aggregate Transaction Data per Warehouse						
Date	Facility	Inbound	Outbound	Cherry SKU	Partial SKU	Cherry Cases
Date	Facility	Inbound	Outbound	Cherry SKU	Partial SKU	Cherry Cases
Date	Facility	Inbound	Outbound	Cherry SKU	Partial SKU	Cherry Cases
Date	Facility	Inbound	Outbound	Cherry SKU	Partial SKU	Cherry Cases
Date	Facility	Inbound	Outbound	Cherry SKU	Partial SKU	Cherry Cases
Date	Facility	Inbound	Outbound	Cherry SKU	Partial SKU	Cherry Cases
.....						



Operations and Supply Chain Improvement of Steel Crate Assembly Plant through Simulation

Role: Assembly Line Simulation and Modelling

- Partnering with Saengsan Engineering in Chonburi, Thailand.
- Developed Inventory models and recommendations for procurement.
- Developed a tool to identify bottlenecks and configure assembly line to give optimal throughput
- Recommend action items based on lean manufacturing principles.



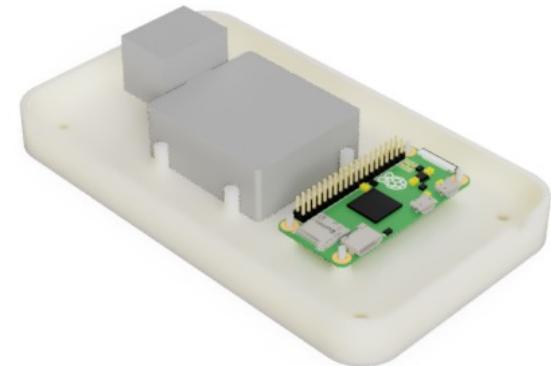
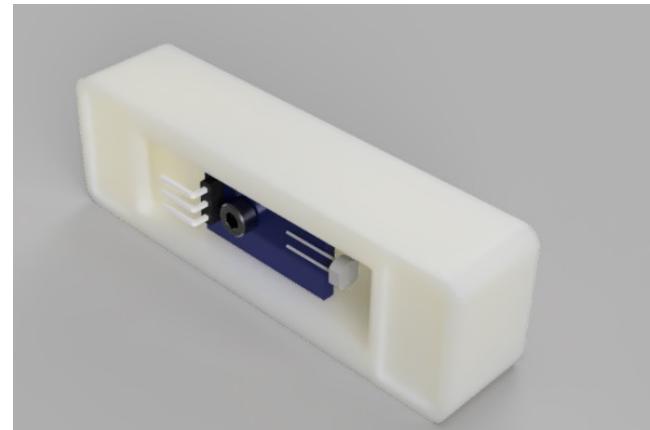
Laundry Bot

Role: Lead Mechanical Designer and Project Supervisor

- Project on automated laundry notification system implemented on one of National University of Singapore's student residences.
- The system allows residents to check on the status of the washing machines, so they would not need to go back and forth the laundry rooms to check on the machine availability

GitHub repository:

<https://github.com/RC4-LaundryBot/nuscollegelaundrybot>

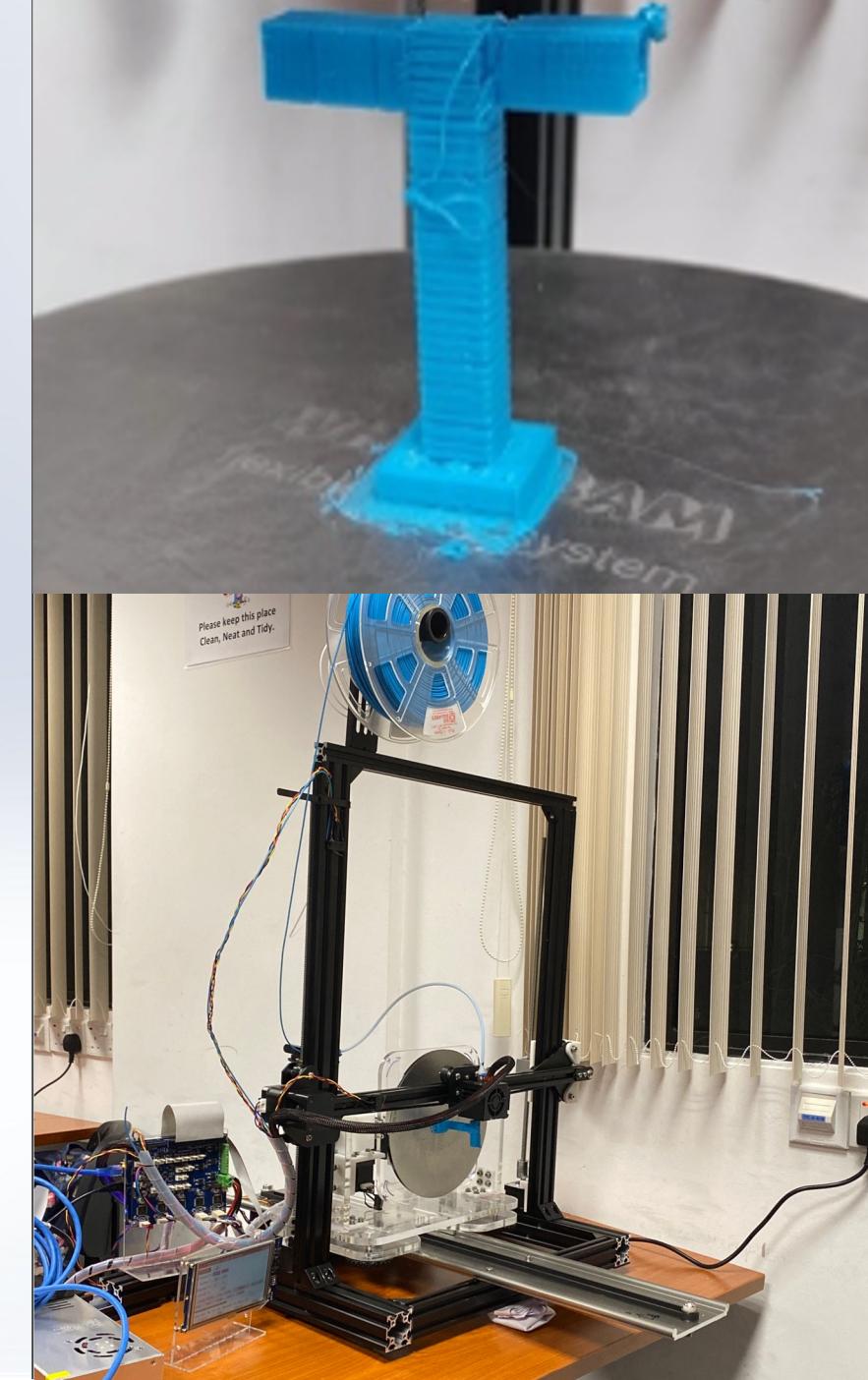


5 Axis FDM 3D Printer

Role: Project Lead and Mechanical Designer

We aim to remove the need for support structures in FDM 3D printing by enabling part reorientation in FDM 3D Printing. In addition to that, it is possible to eliminate anisotropy of the part.

Video Link: <https://youtu.be/syLM8uPMOSI>



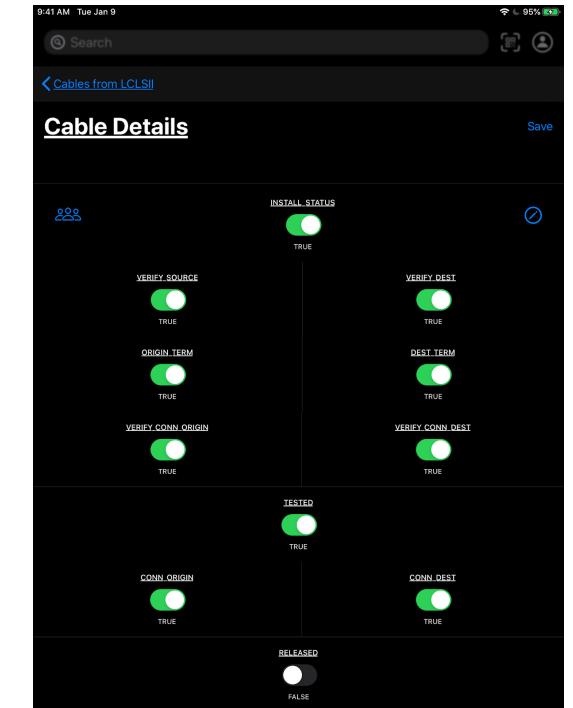
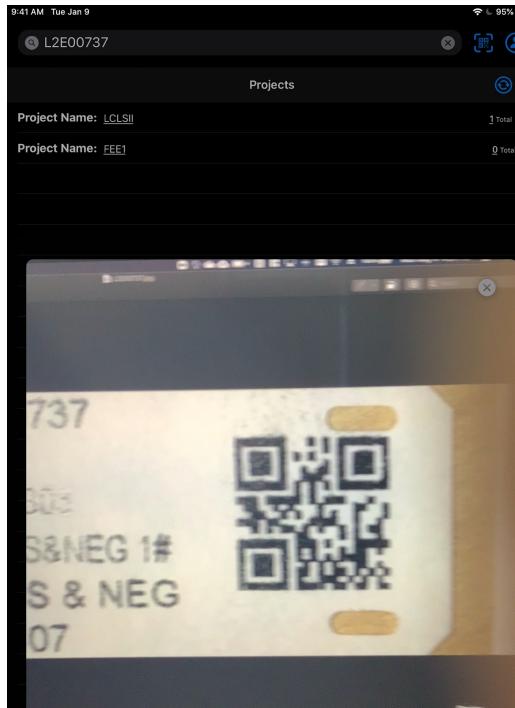
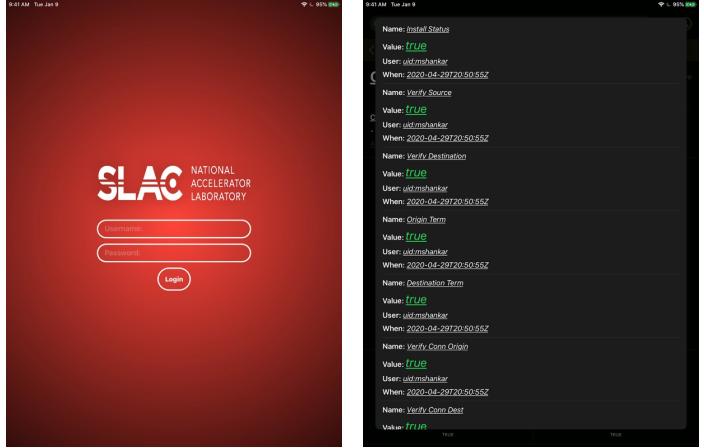
SLAC

Role: Technical Documentation and Software Engineer

- Built an iOS and Android mobile application to help technicians and engineers to track and manage their cable connections in SLAC, the longest linear particle accelerator in the world. Our app features a QR code scanner and deferred syncing.

- Each project involves more than 10 000 cables and there are more than 10 projects happening at the same time. Our algorithm has improved data syncing time by **10 times faster** than the previous application.

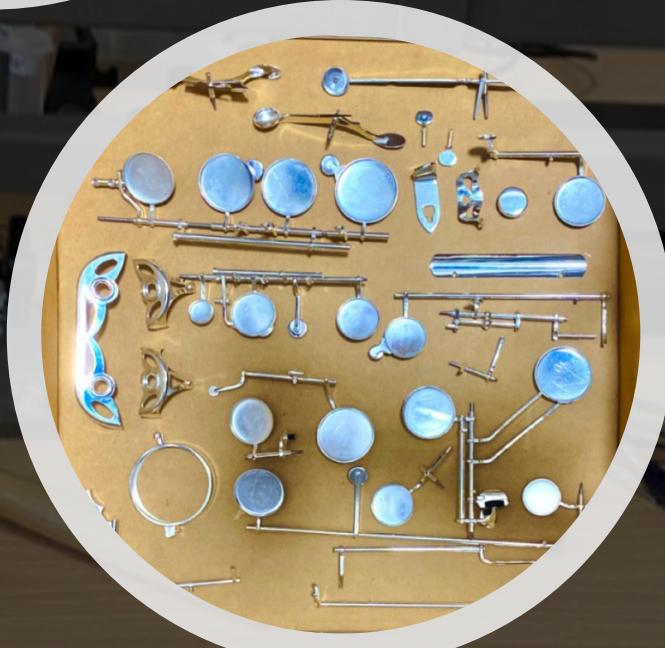
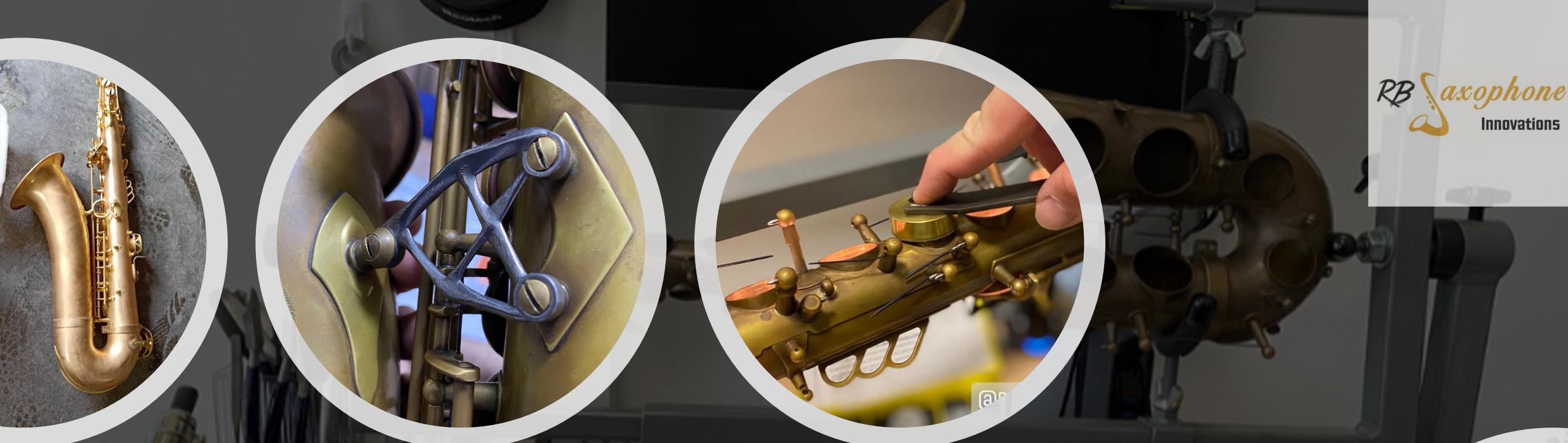
Tech Stack



Saxophone Manufacturing Project

Prototyping the First Saxophone in Singapore

- Combining components from the best suppliers and manufacturers at over 10 countries worldwide
- Our proprietary design, tooling and processes helps to ensure the highest quality





Saxophone Manufacturing Highlight: The Machine Shop

Featuring products made in-house at our
machine shop in Indonesia



Saxophone Manufacturing Highlight: Handcrafted Saxophone Necks

- Hand Hammered Saxophone neck
- Lead-free processes



Saxophone Manufacturing Highlight: Bell to Body Brace

**First Metal Additive Manufacturing
part for commercial use in the
Saxophone**

The design allows for a stronger bell to body joint such that no adhesives is needed in the body to bow joint

RC4Space: Garage



*Project Director / Founder (2018),
Advisor (2019 –present)*

- Spearheaded the first student-led makerspace initiative in the National University of Singapore.
- A space where students can work on their personal and academic projects.
- We provide 3D Printers, workstations, hand tools, power tools and supplies to support student projects.

NUANSA 2019: Lukisan Jati

Producer (Project Director)

- Directed ideas, set objectives, and led the executions of a musical production valued at over SGD 50,000 with a team of 112 members

Website: <https://www.nuansacp.com>



Featured: NUS Student Life Ambassador

DIVERSITY & INCLUSION

STUDENT LEADERS

Juggle between CCAs and Studies – Is this possible in NUS?



<http://nus.edu.sg/osa/stories/details/Index/juggle-between-ccas-and-studies>



Conference
Session
@
3D Experience
World 2021