

Russel Bradley

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Current Location: Cambridge, MA, USA | Home Country: Indonesia

Personal Profile Statement

As someone who has studied, designed and tinkered with many technologies, both software and hardware, my interest in smart manufacturing and its prospects for the future come naturally. I continuously learn by working on interdisciplinary projects in utilizing modern advancements in machine learning, data analytics and its tools within the context of manufacturing. My ultimate goal is to spearhead the development and introduction of advanced manufacturing technologies and practices in Southeast Asia.

Education

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| Massachusetts Institute of Technology, USA (4.9/5.0) | Aug 2021 – Jun 2023 |
| <ul style="list-style-type: none">• Master of Engineering, Advanced Manufacturing and Design• MIT Sloan Business Analytics Certificate• Studied topics on Manufacturing Process, Process Control, Operations & Supply Chain and Machine Learning | |
| National University of Singapore, Singapore (4.51/5.00) | Aug 2017 – Jul 2021 |
| <ul style="list-style-type: none">• Bachelor of Engineering (Honours), Mechanical Engineering• Second Major in Innovation & Design, Minor in Computer Science• Studied topics on Manufacturing Engineering, DfMA, CAD & CAM, tool design and manufacturing automation• ASEAN Undergraduate Scholarship and AY2018/2019 Semester 1 Dean's List | |
| University of California Merced, United States of America (4.0/4.0) | Jan 2020 – May 2020 |
| <ul style="list-style-type: none">• Non-Graduating, Student Exchange Program in Computer Science and Engineering• Completed courses on Software Engineering, Computer Networks, Algorithms and CAD | |
| Bina Bangsa School Malang, Indonesia (4A*) | Aug 2015 – May 2017 |
| <ul style="list-style-type: none">• High School, Accelerated Program, Cambridge A Level Examinations | |

Teaching Experience

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| 2.853/4: Intro to Manufacturing Systems, Massachusetts Institute of Technology | Fall 2022 |
| Teaching Assistant 25 students Teaching Evaluation Pending | |
| ME2102: Engineering Innovation and Modelling, National University of Singapore | Spring 2021 |
| Teaching Assistant 324 students Teaching Evaluation 4.4/5.0 | |
| ME2161: Manufacturing Processes, National University of Singapore | Fall 2020 |
| Teaching Assistant 375 students Teaching Evaluation 4.4/5.0 | |
| TME2162: Manufacturing Processes, National University of Singapore | Fall 2020 |
| Teaching Assistant 52 students Teaching Evaluation 4.4/5.0 | |
| EG2301: Case Studies in Innovation, National University of Singapore via Autodesk | Fall 2020 |
| CAD Instructor (contract) 120 Students | |
| EG2301: Case Studies in Engineering, National University of Singapore via Autodesk | Fall 2019 |
| CAD Instructor (contract) 102 Students | |
| EG1311: Design and Make, National University of Singapore | Fall 2019 |
| Lab Tutor 60 Students Teaching Evaluation 4.5 / 5.0 | |
| CS1010E: Programming Methodology I, National University of Singapore | Spring 2019 |
| Teaching Assistant 14 Students Teaching Evaluation 4.1 / 5.0 | |

Research Experience

Research Assistant, MIT Device Realization

Sep 2022 - Present

- In collaboration with 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.

MEng Thesis, MIT - Tec de Monterrey Collaboration

Feb 2022 - Present

- 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.
- Partnering with Tulip Interfaces to build a smart factory within MIT campus. The goal is to have a platform for MIT manufacturing students to learn smart manufacturing. An important component of smart manufacturing is the ability to collect data from the factory floor before we could do any meaningful analytics. We are working in building the infrastructure needed to collect, store and analyse data, including but not limited to a ‘lightweight MES’, data warehouse, smart assembly workstations, digital inventory management and machine monitoring applications. This involves implementation of sensors, vision and edge devices, integrating the machines to a centralized database server, building frontline operations applications and dashboards to manage factory operations, and conducting data analytics (ML) to gain insights on the manufacturing system.
- Collaborating with MIT.nano Immersion Lab to develop a short course on Virtual Reality (VR) and Augmented Reality (AR) applications for manufacturing.
- Thesis Advisor: Dr. Brian Anthony

Internship Experience

SOLIDWORKS Student Leader Intern at Dassault Systèmes, USA (Remote)

Oct 2020 – Jun 2021

- Dassault Systèmes is a multinational company that develops CAD software such as SOLIDWORKS and CATIA
- Trained over 170 students on Computer Aided Design in Solidworks by conducting workshops & webinars
- Certified over 125 students on Solidworks at the Associate and Professional Level

Algorithm Intern at Lexikat (Vox Dei Pte Ltd), Singapore

Jun 2020 – Aug 2020

- Lexikat is a text analytics software that helps to capture topics and visualize text data
- Designed & improved algorithms to process millions of pages of Bahasa Indonesia text data in Python & C++
- Built the initial text analytics prototype to expand to the Indonesian market

Autodesk Fusion Catalyst Intern at Autodesk Asia Pte Ltd, Singapore

Jan 2019 – Dec 2019

- Autodesk is a multinational company that develops CAD software for manufacturing, construction and media
- Promoted Autodesk Fusion 360 (cloud-based CAD, CAM & CAE software) to NUS students and professors
- Conducted workshops on CAD and its applications using Autodesk Fusion 360 to a total of 500 students
- Successfully integrated Fusion 360 into 2 NUS modules, increasing outreach to an additional 700 students

Automation Engineering Intern at Structo Pte Ltd, Singapore

May 2019 - Aug 2019

- Structo is a digital dentistry company that manufactures high throughput resin-based 3D printing solutions
- Conducted quality and reliability testing, FMEA, and DfX analysis of Mask Stereolithography 3D Printers
- Designed and manufactured parts and subassemblies for automation systems using Computer Aided Design
- Delivering world's first fully automated production line capable of printing thousands of unique products per day

Conference Presentations

Bradley, R. (2021, February). Designing Augmented Reality Models for the Digital Classroom. Conference session presented at 3D Experience World 2021, a Dassault Systèmes annual conference, Nashville, Tennessee, United States of America (Online).

Organisational and Committee Experience

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| President, Association of Indonesian Students at MIT | May 2022 - Present |
| Scholars and Careers Head, Indonesian Students Association Massachusetts | May 2022 - Present |
| NUANSA Cultural Productions, Producer (Project Director) | Jan 2019 – Dec 2019 |
| <ul style="list-style-type: none">Planned and managed an Indonesian cultural production worth over SGD 50 000Headed team of 112 people from different departments from external relations, artistic and productionImproved cash flow by significantly reducing production costs by 60% | |
| NUS Residential College 4, RC4SPACE, Vice President | Aug 2018 – Aug 2019 |
| <ul style="list-style-type: none">Spearheaded a student-led makerspace initiativeOrganized weekly hands-on workshops on technology (Arduino, Raspberry Pi, Python programming)Initiated a project on an automated laundry notification system used by more than 600 peopleDeveloped e-learning and course material on 3D Printing and CAD | |
| PINUS (NUS Indonesian Students Association), Finance Director | May 2020 – May 2021 |
| NUS Residential College 4, RC4 Music Expression, Treasurer | Aug 2018 – May 2019 |
| Bina Bangsa School Student Council, President | Aug 2015 – May 2016 |

Awards and Honours

- ASEAN Undergraduate Scholarship, National University of Singapore
- Dean's List AY1819 Semester 1, National University of Singapore Faculty of Engineering
- Top in The World – Cambridge AS Level Mathematics, November 2016 Session
- Valedictorian, Bina Bangsa School Malang

Professional Certificate

Additive Manufacturing for Innovative Design and Production

- MIT xPRO (Massachusetts Institute of Technology), September 2020 – January 2021

Skills

- Languages:** Native Bahasa Indonesia, Fluent in written and spoken English, Limited working proficiency in Mandarin
- Business Skills:** Project Management, Negotiation, Corporate Relations
- Productivity:** Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Google Workspace (formerly G Suite)
- Programming Languages:** C, C++, Java, Python, Matlab
- CAD/CAM/CAE:** Solidworks, Autodesk Fusion 360, Siemens Solid Edge, PTC Onshape, Ansys
- Hands-on:** Manual Lathe and Milling, 3D Printing, Laser cutting, CNC Machining
- Others:** Teamwork, Collaborations, Teaching, Public Speaking, Design Thinking, Systems Thinking

References

Dr. Brian ANTHONY

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