Curriculum Vitae

APRILIA

[redacted]
Phone: (+65) [redacted]
Email: a004@e.ntu.edu.sg

PERSONAL PROFILE

- A highly motivated and enthusiastic graduate student with great interest in research and having the ability to actively contribute to the research projects goals.
- Able to use own initiative and work as part of a team under pressure to meet challenging deadlines/objectives.
- Enjoy collaborating with scientists from different disciplines to develop new skills and solve new research challenges.

RESEARCH INTERESTS

- PhD research topic: 3D model reconstruction of damaged parts in an automated repair process using additive manufacturing technology.
- Research interests: 3D printing, 3D scanning, model reconstruction, image processing, computer vision, materials science and engineering.

EDUCATION BACKGROUND

Doctor of Philosophy (Ph.D.) **2016 - Present**
Nanyang Technological University, Singapore
Cumulative GPA: 4.92/5.00

B. Eng. (Hons) in Mechanical Engineering **2013 - 2016**
Nanyang Technological University, Singapore
Cumulative GPA: 4.92/5.00

Diploma with Merits in Mechanical Engineering **2010 - 2013**
Singapore Polytechnic, Singapore
Cumulative GPA: 3.893/4.00

ACADEMIC HONORS AND AWARDS

Best Presentation Award **2019**
for *Sharp Edges Restoration of Kinect's 3D Scanned Data* in
2nd International Conference on Image and Video Processing

Nanyang President's Graduate Scholarship Award **2016**
A competitive and prestigious scholarship scheme

Bechtel Gold Medal **2016**
Highest aggregate marks in any two major prescribed electives from the manufacturing engineering specialization

Dean's List in Mechanical Engineering **2014, 2015 and 2016**
Top 5% grade of the cohort in the academic year

NTU Class of 1985 Scholarship Award **2014 and 2015**
Short term scholarship from NTU class of 1985 graduates

Outstanding Class Leader Award **2013**
Part of Singapore Polytechnic Excellence Awards

Book Prize of Outstanding Performance in Thermofluids II **2012**
Part of Singapore Polytechnic Excellence Awards

Director's Honor Roll in Mechanical Engineering **2011, 2012, and 2013**
Top 10% grade of the cohort in the academic year.

RESEARCH EXPERIENCE

3D model reconstruction of damaged parts in an automated repair process using additive manufacturing technology (2016-Present)
PhD research topic

- Identify and establish the automated remanufacturing process flow.
- Establish the nominal model reconstruction framework.
- Develop a nominal model reconstruction algorithm.
- Apply and evaluate the proposed framework to several real application case studies.

Grain growth of magnesium alloy AZ31B in isothermal condition (2015)
Final year project of undergraduate study in NTU

- Characterized a given magnesium alloy sample.
- Studied the grain growth kinetic and the Hall-Petch relation in AZ31B.
- Investigated the effect of heat treatment on magnesium alloy AZ31B.

Development of biologically friendly photopolymer for stereolithography (2015)
Internship with Singapore Institute of Manufacturing Technology

- Developed a biologically friendly photopolymer.
- Understood the stereolithography printing system.
- Assembled a stereolithography 3D printer.
- Did a tensile test and evaluated its result.

PUBLICATIONS

Journal paper

W. L. K. Nguyen, A. Aprilia, A. Khairyanto, W. C. Pang, G. G. L. Seet and S. B. Tor, "Morphological Box Classification Framework for Supporting 3D Scanner Selection," Virtual and Physical Prototyping, 2018.

Conference papers

A. Aprilia, W. L. K. Nguyen, W. C. Pang, A. Khairyanto, S. B. Tor and G. G. L. Seet, "Damage Boundary Detection of Partially Scanned Models," 2018 IEEE 2nd International Conference on Imaging, Vision and Pattern Recognition, Japan, 2018.

W. L. K. Nguyen, A. Aprilia, A. Khairyanto, W. C. Pang, G. G. L. Seet and S. B. Tor, "Edge Detection from Point Cloud of Worn Parts," Proceeding of the 3rd International Conference on Progress in Additive Manufacturing, Singapore, 2018.

A. Aprilia, W. L. K. Nguyen, A. Khairyanto, W. C. Pang, S. B. Tor and G. G. L. Seet, "Towards Automated Remanufacturing Process with Additive Manufacturing," Proceeding of the 3rd International Conference on Progress in Additive Manufacturing, Singapore, 2018.

A. Khairyanto, A. Aprilia, W. L. K. Nguyen and G. G. L. Seet, "Evaluation of 3D Scanner Using Elimination and Multi Criteria Decision Making (MCDM) Method," Proceeding of the 2nd International Conference on Progress in Additive Manufacturing, Singapore, 2016.

CERTIFICATIONS

HWG702 University Teaching for Teaching Assistants **2017**
Successfully completed the eight-module course with assessment.
Qualified to be a teaching assistant in NTU.

Image Integrity – Best Practice in Preparing Imagery for Publication **2017**
Successfully completed the course of using ImageJ to prepare the imagery for publication

PROJECT EXPERIENCE

Mechanical Car Stacker (2015)

Engineering design project in NTU

- Established a product specification
- Used the four phases of design process: product definition, conceptual design, embodiment design and detail design.
- Made ladder diagram for the programmable logic controller.
- Calculated rating power of the motor used.
- Made detail drawings of product.

- Did material selection using screening, ranking and documentation process.
- Estimated the product cost.

Ceiling Fan Cleaner (2014)
Engineering innovation and design project in NTU
- Made product design poster.
- Made product prototype.

Integrated Grass Cutter with Grass Collecting System (2013)
Final year project for diploma study in Singapore Polytechnic
- Studied the original grass cutter and blower system.
- Modified grass cutter with adding a collecting system in it.

Lavatory in the sky (2012)
BOEING project
- Designed a new lavatory door system.
- Designed a new trolley system.

Car Toy Making Competition (2011)
Introduction to engineering in Singapore Polytechnic
- Using manual milling to make the car toy chassis.
- Using manual turning to make the car toy wheel.
- Using wire cutting to make the car toy body.

TEACHING EXPERIENCE

P3.6 Vibration Testing of Multi-DOFs Systems **Jul 2019 – Present**
MA3071 mechanical experiment (5-weeks group project)
- Created briefing slides
- Briefed student on the experiment project
- Guided student on carrying out the experiment
- Answered and explained to the student about the experiment theory of vibration
- Marked student reports

E2.8 Nondestructive Testing **Aug 2018 – Present**
MA2071 mechanical experiment
- Create teaching material
- Explain and teach student about nondestructive testing
- Guided student on carrying out the experiment and collecting the data
- Answered and explained to the student about the experiment theory

P3.7 Control of Vibration **Jan 2018 – Jul 2018**
MA3071 mechanical experiment (5-weeks group project)
- Created briefing slides
- Briefed student on the experiment project

- Guided student on carrying out the experiment
- Answered and explained to the student about the experiment theory of vibration
- Marked student reports

MA1002 Fundamentals Engineering Materials **Aug 2017 - Jul 2018**
Managing the online lecture LAMS system
- Checked the contents, question and answer
- Tracked student participation
- Troubleshot any system errors
- Helped to answer students' enquiries.

WORK EXPERIENCE

Project Officer **Feb 2016 – Jul 2016**
SC3DP, MAE, Nanyang Technological University
- Evaluated 3D scanners in the market.
- Prepared technical specification documents for tender.
- Reviewed the geometric reconstruction process of repairing a damaged object through reverse engineering application.

Intern **May 2014 - Aug 2014**
Panaflo Controls Pte Ltd
- Evaluated and improved valve testing process
- Made a 3D animation video using Autodesk Inventor
- Created a procedure manual for valve testing process
- Made an automatically generated quality inspection form using Excel
- Made posters about standard document used in valve testing process

Home Tutor **2013 - 2014**
- Taught mathematics subject to a primary 4 student.

Tuition Center Tutor **2010 – 2013**
Achievers Learning Centre Pte Ltd
- Taught mathematics subject to primary and secondary students.
- Made and prepared teaching materials.
- Trained in using Sakamoto methods for solving mathematics questions.

SKILLS

Languages
English, Mandarin, Bahasa Indonesia, Malay and Teochew (Dialect)

Computer Skills
Microsoft Word, Microsoft Excel and Microsoft PowerPoint.
AutoCAD, Autodesk Inventor, Pro/E, SolidWorks, MasterCam and Rhinoceros 3D.

Geomagic Design X, Geomagic Control X, FARO Scene.
Matlab and Python programming.

Hand-on Skills
Manual cutting, drilling, milling and turning process
Metallography sample preparation process
Tensile testing & hardness testing
Heat treatment process
Optical, stereo and scanning electron microscope
Electron backscatter diffraction (EBSD)
3D printing
3D scanning
3D point cloud data processing

ORGANISATION

The Institution of Engineers, Singapore **Dec 2016 - Present**
Member

EXTRA CURRICULAR ACTIVITIES

Residential Mentor, the Inspire Program **Aug 2018 - Present**
Residential Education at North Hill and Yunnan Cluster

- Plan and conduct education programs for the undergraduate residential

Treasurer, Main Committee **Aug 2018 - Present**
MAE Graduate Student Club

- Plan and write the proposal for the club's annual expenditure
- Control and oversee the overall financial flow of the club
- Do the claim reimbursement

Assistant Director, Academic Team **Aug 2017 - Jul 2018**
MAE Graduate Student Club

- Worked closely with other committees in planning and conducting academic events

Main Committee, Logistic Officer **Aug 2013 - Jul 2015**
Concert Engineers Club

- Managed and controlled sound system in events
- Led subcommittees in managing equipment

Main Committee, Learning Programmer **Nov 2013 – Jan 2014**
Overseas Community Service in Nias, Indonesia

- Planned educational programs or games
- Introduced Singapore culture to the children