Josh Garry
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Online Portfolio

Bachelor of Engineering

Dissertation

Joshua Garry

Mechanical Engineer

About Me I am a graduate mechanical engineer (bachelors with honors) from USQ. I am a skilled draftsman, ERP coordinator and programmer. I have focused my recent development around utilizing my love of programming to complement my engineering education. For more sample of work see my portfolio.

Education

2018 – 2023, University of Southern Queensland
Bachelor of Engineering Honors (Mechanical)

Courses studied;

- Intro Eng & Spatial Sci Appls
- Intro to Engineering Design
- Engineering Statics
- Engineering Materials
- Mechatronics & Automation
- Advanced Engineering Maths
- Stress Analysis
- Eng Simulations & Comp
- Design of Machine Elements
- Mechanical Practice 2
- Materials Technology
- Professional Practice 1
- Mech & M'tronic System Design
- Professional Practice 2
- Production Engineering
- Mechanical Practice 3
- Engineering Management
- Advanced Thermofluids
- Research Project Part 2
- Robotics and Machine Vision
- Eng Problem Solving Principles
- Engineering Mathematics
- Engineering Practice
- Solid Modelling
- Techn Sustainability & Society
- Dynamics I
- Mechanical Practice 1
- Introduction to Thermofluids
- Manufacturing Processes
- Thermofluids
- Computational Mech in Design
- Eng Research Methodology
- Dynamics II
- Electrical Technology
- Mechanical Practice 4
- Embedded Systems Design
- Research Project Part 1
- Structural Design I
- Renewable Energy Technology
- Work Experience - Professional

Final year research project; *Asset Classification with Deep Learning from Computer Added Design Parts.* In this project an industrial client focused method for asset classification is proposed; where the output of a machine learning algorithm can identify the CAD model corresponding to the subject of the image input. This method aims to use a per part identification system based on the client's own database as opposed to the norm of general categorical identification. This involved training multiple iterations of classification models and using them as well as existing models from the Google Keras and Tensorflow framework for machine learning. This yielded a best result of 55.55 percent accuracy with the model trained with the ResNet50 base. One of the main findings was that the most influential factor for success in implementing this technique, is the selection of the pretrained model base.

2014 – 2017, Toowoomba Christian College
High School

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Code Tool

Capability Statement

Workshop Experience

Experience

November 2020 - present, *Draftsman ERP Coordinator,* Downs Sheet Metal and Janke Australia

Detailed achievements:

- Gained experience in design for
  - Sheet metal manufacturing
  - Heavy agricultural equipment
- Improved drafting skills such as;
  - In context modeling
  - File and database stability
  - Revisioning and standardizing
- Used Amada Sheetworks (a derivative of Solidworks) extensively to remotely program an Amada press-brake.
- Used Solidworks CADCAM to program produce Gcode for a Doosan milling machine.
- Set up Opto Manufacturing enterprise resource planning (ERP) software to order, allocate and keep track of materials, produce and track job tickets and provide acurate costing for products.
- Wrote the company standards document for drafting policy as well as engineering design. This document was/is used to train new employees in the practices that are now expected of draftsmen.
- Coded a graphical user interfaced tool to help code and decode internal company part codes to assist the drafting and manufacturing and sales teams. This was developed in Python, exported as an .exe installer and could be deployed on any Windows computer.
- Wrote, collaborated with external graphic designers and arranged for printing of capability statement for DSM in time for a trades show. This is a 12 page document effectively communicating DSM's strengths and competitive advantages for the purpose of increasing revenue with contract jobs.
- Developed a smart export program to deduce information about parts based on metadata as well as geometric markers as well as an import program to enter data into ERP software. This minimizes turnover time between having a finished CAM model and complete automated ERP setup.
- Completed sub-contracted design work for a client where existing designs needed to be integrated into a final version. This also had manufacturing constraint due to the fabricators chosen to make the design. This work resulted in 10k worth of billing for Janke.

2015 – 2020, *Trades Assistant,* Bettabuilt Fabrication

Worked in many holidays through high school in the workshop assisting boilermakers. In this time I am grateful to have gained skills in;

- Welding
  - MIG DC and pulse
  - stick
- Fabricating (tacking out)
  - beam and rafter assemblies
  - roller door tracks
  - railings

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UAV Challenge

CAD Software Skills

- Solidworks
- Solid Edge
- Advance Steel
- Sketchup
- Sheetworks
- Inventor
- FrameCAD
- Blender
- PTC Creo
- AutoCAD
- Revit

Software Development Skills

Languages

- Python
- VBA
- Windows CMD
- Matlab
- Gcode
- LaTeX ...this document
- C / C++
- Bash

Frameworks

- Tensorflow   (Machine Learning)
- PyQt   (User Interface Design)
- PythonCOM   (Application APIs; Solidworks)
- Pandas   (Data Science)
- Git   (Version Control)

Presentations

Drafting Presentation USQ

Presentation a 30 minute talk to the solid modeling class at USQ. The talk focused on my experience working in a drafting role with an emphasis on the legal aspects and ramifications of producing drawings for subcontracting.

Awards

2017, UAV Aerial Recovery Challenge

Joint team winner of the international UAV aerial recovery high-school challenge ($5500 winnings).

2016 - 2017, *Mechatronics Award,* High-School

Won the school Mechatronics award, consecutively (years 11 & 12).

Interests

- Road Bikes
- Brewing
- Scuba Diving
- FPV Drones

References

Dr Khalid Saleh (+61) 4064 999 24 Khalid.Saleh@usq.edu.au

Professor (Mechanical Engineering) and lecturer at USQ
Taught me Solid Modeling, programming with Matlab and Advanced Thermodynamics.

Dr Tobias Low (+61) 7 4631 1714 Tobias.Low@usq.edu.au

Professor (Mechatronic Engineering) and lecturer at USQ
Taught me Mechatronics & Automation, Robotics & Machine Vision and supervised my Final year Project.

Dr Craig Lobsey (+61) 7 4631 1322 Craig.Lobsey@usq.edu.au

Professor (Mechatronic Engineering) and senior lecturer at USQ
Taught me Mechanical and Mechatronic System Design

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Workshop Manager at Bettabuilt

Felix Lallon **(+61) 42 477 5446**
Boilermaker at Bettabuilt