Hayden Moore

Makerspace Expert

I am a maker with a passion for education. I help students from all backgrounds take their ideas from dreams to reality using a methodical approach and iterative prototype development. Being a jack of all trades, I immerse myself in a wild variety of tech, software, hardware, artisan crafts, art, science and engineering, as at their intersection is where the magic happens!

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Expertise

Driven by curiosity in absolutely everything, and being immersed in a Maker Space for years, I've picked up a generalist's arsenal. Below are some of my strengths I can talk about in detail.

Concepts

- Maker Spaces
- Rapid Prototyping
- Innovation
- Design Thinking
- Workshops
- Learning design

Knowledge bases

- Programming
- Electronics
- Engineering
- Product Dev
- Chemistry
- Manufacturing
- Physics
- Materials
- Woodwork
- Metalwork

Equipment

- 3D printing
- Laser cutting
- CNC routing
- Vinyl cutting
- Soldering
- 3D scanning
- Sewing
- Vacuum forming

Digital Design

- Fusion 360
- Illustrator
- Blender
- Photoshop
- EasyEDA
- Inkscape
- Pepakura
- Premiere

Programming

- Python
- HTML/CSS
- Arduino
- JavaScript

Education

2017
BSc – Computer Science
University of Auckland

Experience

Feb 2020 - Present
University of Auckland, Centre for Innovation and Entrepreneurship

Maker Space Coordinator

- Daily activities include running training sessions and workshops, maintaining health and safety practices, assisting students with taking innovative and personal projects from idea to reality, equipment operation and maintenance, consumables replenishment, managing the budget and record keeping.
- I manage a team of 15 student Creative Technologists to assist in activating the Maker Space. I was tasked with hiring the best team for the job and now I focus on their technical and professional development.
- Inducted over 5200 students over to the Maker Space by digitally transforming the orientation process so it could be online. This involved creating a series of orientation videos as well as automation scripts so the process could be fully hands-off.
- Developed 9 training videos, 9 on demand video tutorials, and a blended training model so we could run 4000 equipment trainings in half the original time.

Nov 2017 - Feb 2020
Spire Construction Research and Development

Engineering Technologist

- By following product design methodology and the design thinking framework I created many functional product prototypes for overseas clients. Tools and technologies I used included electronic circuit design, PCB manufacturing, CAD, 3D printing, embedded systems and software development.
- I created business cases and conducted market research to analyse potential projects.

Projects

haydenmoore.nz

Periodic Table Museum Display

I collect pure elemental samples from the periodic table so naturally I decided to create a fitting display for them, an app-controlled LED grid in the shape of the periodic table! An Arduino controls the LED animations and manages a bluetooth connection with a phone. The phone app determines what is shown e.g. metals, non-metals, radioactive, density graph, elemental compositions, etc. I put build-instructions and code online and a giant version was made for South Africa's Science Festival!

Automating The Boring Tasks

I needed to cut thousands of lengths of wire to exact dimensions so I used an Arduino, a 3D printer extruder, stepper motor, Inkscape, laser cutting, vinyl cutting, CNC routing, and soldering to make an automatic wire cutter!

The Perfect Chef's Knife

One of my artisan hobbies is knife making. After many sketches and 3D designs in Fusion 360, I selected a water-ripple patterned damascus steel made from high Carbon and high Nickel steel and ground a profile then bevel for a chef's knife. I had to build a furnace so I could heat treat and temper the steel before acid etching it and adding a hand-crafted handle made from micarta, brass, carbon fiber, gold, and resin.

Terrible Idea or a Great One?

My team and I won the spectacle award at the Terrible Ideas Hackathon by building a working robot-controlled tattoo machine. Give it a design and a body-part and it'll give you a tattoo! I wrote a custom SVG to G-code interpreter and hacked a 3D printer fan pwm pin to turn on the tattoo gun!