

DEL JACKSON

London, UK

email: deljacksonart@yahoo.com

Phone: +44 7535 561577

Linkedin: <https://www.linkedin.com/in/deljackson/>

Website: www.deljackson.com

Github: <https://github.com/dlbjcksn82>

PROFILE

- AI & Machine Learning Engineer with a background in engineering, computational modelling, and AI-driven problem-solving.
- I recently completed an MSc in Computer Science with an AI specialisation at the University of York, where I developed machine learning models for motion analysis.
- Passionate about applying AI to automation and industrial engineering solutions. Strong programming skills in Python, TensorFlow, Scikit-Learn, and Pandas, with experience in data analysis, computational modelling, and AI-driven optimisation.
- Trained engineer, artist, and programmer with a multi-disciplinary approach to problem solving.
- Extensive experience in 3D CAD, computational modeling, robotics, and automation
- Skilled in Python, TensorFlow, Scikit-Learn, machine learning pipelines, RAG, LLM's, OpenAI APIs
- Independent maker: Built a laser cutter from parts using an open-sourced platform and design. Also designed and built robotic and interactive artworks.
- Always eager to learn new skills and am curious by nature.

EDUCATION

University of York – York, UK

MSc Computer Science with Artificial Intelligence (2022 – Expected 2025)

Status: Coursework completed, thesis pending evaluation (on track for merit)

Key Coursework: Data Analysis, Machine Learning, Deep Learning, Java and Python Programming, SQL

Thesis Project:

- Developed a machine learning model to classify movement patterns using sensor data (accelerometer, gyroscope, force).

- Applied Python, NumPy, Pandas, and Scikit-Learn for data preprocessing, feature engineering, and visualisation.
- Implemented deep learning techniques (CNNs, time-series analysis) to refine model accuracy.
- Thesis project is currently being evaluated for use by EO Swimbetter for incorporation into their product.

University of Iowa – Iowa City, IA, USA

- **BS Civil Engineering** (2004–2009)
 - Studied calculus, statistics, linear algebra, differential equations, mechanics of deformable bodies (which covered finite element modelling).
 - Also did some basic introductory C programming. Also took introductory courses in computer engineering and electrical engineering. I learned how to design electrical circuitry
- **MFA Art and Design** (2009–2013)
 - took courses in metalsmithing, sculpture and 3d design.
 - Gained experience in 3d and 2D CAD.
 - Worked on VR projects
 - Learned to use CAM software
 - Created projects on a CNC Lathe, Mill, and Laser cutter
 - Created many robotic art works by designing the mechanical components, designing and etching electrical circuits, implementing computer programs written for Arduino.
 - Thesis project was a mechanical wall sculpture that responded to viewers through sensors and motors.
- **BA Art** (2000–2004)
 - Took courses in metalsmithing as well as drawing and photography

Engineering and AI Experience

Machine Learning Research (Thesis Project)

University of York | 2023 – 2025

- Developed a machine learning model for motion analysis that classified swimming strokes based on acceleration data from hand sensors
- Applied deep learning frameworks (TensorFlow, Scikit-Learn, Pandas, NumPy) to classify movement patterns.
- Engineered feature extraction and preprocessing pipelines to improve model accuracy
- Conducted data visualisation and statistical analysis to refine the model's interpretability
- Documented findings in a research paper detailing model design, methodology, and evaluation
- Explored AI-driven feedback systems for real-time performance analysis.
- Achieved a high accuracy rate in swim stroke detection from raw acceleration data

- The model is being considered for integration into EO SwimBetter's commercial device

Senior Engineer

Polar Technology | Eynsham, UK | 2019 – 2023

- Led engineering projects in carbon fibre manufacturing and metal fabrication, supporting hypercars, F1, aerospace, medical, and energy production industries.
- Oversaw manufacturing from technical drawings to full-scale production as a project engineer, ensuring on-time delivery and compliance with industry standards.
- Designed and implemented automated and robotic welding systems, improving production efficiency, precision, and repeatability.
- Conducted mechanical analysis of welds, developing optimal weld settings to meet industry standards and improve structural integrity.
- Created manufacturing timelines, coordinating development, tool creation, and production runs.
- Used 3D CAD software to design tooling and optimise the manufacturing process for composite and metal components.
- Led root cause investigations for manufacturing failures, implementing corrective actions to prevent defects and improve quality.
- Served as the primary customer point of contact, managing project requirements, technical documentation, and design-for-manufacturing reviews.
- Collaborated with cross-functional teams to optimise mechanical design workflows
- Introduced multiple forms of automated welding into the business and designed tools and jigs that could be used to hold parts during automated welding. This included designing and programming jigs that could be transformed during the welding process.
- Used 3D CAD software to simulate stress and other assessments on tooling and manufactured parts.
- Evaluated mechanical material properties of welds to establish different weld settings that were to be used.
- Worked on projects for various customers that included Rolls Royce, US Airforce, Aston Martin, Toyota, and Gordon Murray.
- Oversaw projects from the development stage until they were in production on the shop floor.
- I was a hands-on engineer who not only designed the projects but played an active role in prototyping the build to ensure quality was maintained.
- Followed APQP processes to ensure quality
- Designed automated welding workflows.

Design Engineer

Aptiv | Torslanda, Sweden | 2017 – 2018

- Worked on an autonomous vehicle project for Volvo, ensuring that mechanical integration of electrical components met design, safety, and manufacturing standards.
- Developed Failure Modes and Effects Analysis (FMEA) documents to assess and mitigate potential design risks.
- Used 3D CAD simulations to evaluate manufacturing installation feasibility and improve design efficiency.
- Built computer models to analyse stress in electrical cables, leveraging real-world road and engine vibration data to enhance part longevity.
- Conducted battery cable stress analysis, redesigning cable lengths to minimise strain and extend component lifespan.
- Followed Volvo Cars' engineering processes and procedures, ensuring compliance with design validation and quality control standards.
- Led root cause analysis for quality issues, preparing technical reports and corrective action plans to prevent future defects.
- Adhered to design timelines, coordinating with cross-functional teams to ensure on-time project completion.
- Assisted quality engineers to solve problems with our products in running production and identified root causes so long term fixes could be implemented
- Introduced computational simulations to optimize real-world component durability.

Engineering Intern

Engineering Partner | Torslanda, Sweden | 2017

- Learned to use CATIA v5 by modeling various car parts. Also learned how to use Autodesk Inventor

Design Engineer

Harries/heder | Boston | 2014-2015

- Turned hand built models and sketches of large scaled public artwork into 3d CAD models
- Drew building plans for public art works
- Created cutting files for use by cnc cutting equipment
- Created computer renderings using archicad software

Design Engineer

Nancy Selvage | Boston | 2013-2015

- Turned hand built models and sketches of large scaled public artwork into 3d CAD models
- Drew building plans for public art works
- Created cutting files for use by cnc cutting equipment
- Created computer renderings using archicad software
- Model making

- Liaised with a structural engineer to implement changes to the sculpture so that it could survive extreme weather

Graduate Teaching Assistant

University of Iowa School of Art | Iowa City, Iowa | 2010-2013

- Taught courses in Metalsmithing, Design Fundamentals, Autocad, Portfolio Design, and Virtual Reality
- Planned lessons
- Taught how to use software such as Autocad, 3dsmax, html, python, and adobe suite
- Trained students to use 3d printers and laser cutters

Graduate Research Assistant

University of Iowa School of Art | Iowa City, Iowa | 2012

- Designed a large scale 3d printer prototype that was based on an open sourced project.
- Used rhino3d to design the printer
- Created CAM paths using RhinoCAM
- Manufactured parts using a CNC mill

Personal Engineering and Maker Projects

Laser Cutter Project

- Overview – Built a functional laser cutter from parts using an open-source project called lasersaur
- Challenges:
 - Working with high voltage
 - Soldering together a large project
 - Installing control software on a beagle bone
- Outcome:
 - Demonstrated ability to build products from open sourced projects
 - Built a fully functioning co2 laser cutter that could be controlled from my cell phone

3d printed ocarina

- Overview – Designed and built an ocarina that could be connected to a speaker system using arduino
- Challenges:
 - Building a 3d structure to hold the electrical components and be comfortable to hold
 - Designing the circuitry
 - Programming the software in arduino
- Outcome:
 - Built a functional product that could play music

Art and Computational Design

Robotic and interactive sculpture

- Overview – Designed and built an interactive sculpture using PCB boards that I designed, etched and built myself
- Challenges:
 - Designing the electronics
 - Using picaxe as a microcontroller for the interactive sculpture
 - Designing the sculpture using solar power
 - Designing the sculpture to be outdoors
- Outcome:
 - Built a functional interactive sculpture that was displayed at an art gallery

3d generative pattern artwork

- Overview – Used Grasshopper to create generative design using mathematical equations
- Challenges:
 - Learning to create a 3d model using mathematics and code
 - Creating an aesthetically pleasing sculpture using mathematics
- Outcome:
 - 3d printed multiple sculptures that were well received by critics and purchased by collectors

AI and Software Development

CAM software manipulation

- Overview – Explored using Python to modify the output of CAM software. The goal was to take a CAM program designed to laser cut a bent tube and modify it so that you could type different angles or lengths in the top of the program and those numbers would mathematically change the entire CAM program without reuploading every time. This would cut down on operator time to make parts
- Challenges:
 - Understanding complex 3d Geometry calculations
 - Calculating machine movements using very basic line by line executed code.
- Outcome:
 - Had a simulation running on my computer that allowed the program to adjust dynamically to input.
 - Never got the opportunity to test this on a real machine, but I was able to work out the mathematical transformation required to do this

Swimming Devices

- Overview – Working to build swimming devices that can give user feedback on correct technique.
- Challenges:
 - Building devices that can be deployed underwater
 - Learning to use IMU sensors and get usable data out of the
- Outcome:
 - Project is still in progress
 - Plan to build the first stage of this by making a smart paddle that vibrates when the hand is pointed straight down to the bottom of the pool

AI-driven chatbot for interactive CV

- Overview – developed an Ai driven chatbot using OpenAI, Flask, LangChain, and RAG
- Challenges:
 - Learning to use new API's
 - Learning how to deploy these to the cloud and run on a server
 - Keeping RAM usage down and optimizing the program to keep cost low
 - Implementing RAG to extract relevant CV experience for user queries
- Outcome:
 - Deployed project to render.com with optimized embeddings and queries to keep the chatbot cost-efficient

Technical Skills

AI and Software

- Python, Tensorflow, OpenAI API, LangChain, Flask
- Data Science: Pandas, Numpy, Scikit-Learn, Pytorch
- LLM and Retrieval-augmented generation (RAG)

Engineering and CAD

- 3d CAD (Solidworks, AutoCAD, Rhino, Catia V5, NX, Inventor)
- Finite Element Analysis
- Mechanical System Design
- Quality Control
- Process Design

Digital Fabrication and Maker Skills

- CNC Programming and G-Code
- Laser cutting and 3d printing
- Arduino and Embedded system

