Gregory Greenfield, BEng, IEng

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Software developer that has worked with **microcontrollers** in **C**, **WinForms** in **C#**, **console apps** in **C#**, databases in **SQL**, and scripts in **Python** with 3.5 years of engineering experience in the healthcare industry.

EXPERIENCE - PROJECTS

- **Rote Word Learner**: Terminal app language learning aid

  Developed a rote learning tool that aids me in learning German. The words are stored on a **SQL database container** on **Docker**. It was written in **C#** in the **.NET** framework on **Visual Studio Code**. Version control implemented using **Git**.

- **Are LINACs in use?**: A **.NET WinForm** that shows the status of 10 Linear Accelerators.

  Developed a **WinForm** that queries the status of the department's 10 linear accelerators (LINACs) and displays it. By quickly determining their status, this allowed my colleagues to utilise the LINAC spare time more efficiently. Written in **C#** using the **.NET** framework in **Visual Studio**.

- **Automatic String Tuner**: An automatic electro-mechanical string tuner for my final year degree dissertation.

  Designed and built the **printed circuit boards (PCBs)** that hold the micro-controller and drive board, programmed the PIC **micro-controller** in **C**, designed and fabricated the Zither instrument and motor chassis. Implemented a zero-cross detection algorithm to determine the string's frequency. The micro-controller then determines whether the string tension needs changing, and drives a stepper motor the correct direction using pulse-width modulation.

- **CT Training Course**: A computed tomography (CT) **training** course for responding to 1st line faults.

  Created and delivered an in-house training package for Siemens CT scanners, facilitating trainees and colleagues to be able to respond to 1st line faults. It involved training on system diagrams, radiation safety, and appropriate escalation to manufacturers. Used **PowerPoint** and **practical instruction** for the presentation, and LaTeX typesetting for the **assessments**.

- **Calibration Sweeper**: A Webscraper script that locates and collates configuration files for 10 LINACs.

  Created a **Python** script that uses the **Selenium Webdriver** module to scrape calibration data for our 10 linear accelerators from their respective websites. A **PowerShell** script then homogenises the file structures and adds them to a database for analysis.

- **Mandelbrot Christmas Card**: A **Turtle graphics module** Christmas card generator

  Created a Christmas card generator in **Python** that utilises recursive functions for trees and snowflakes.

- **Upgrade Department's Database System**: An upgrade of the assets and QC **database** from Microsoft **Access** to *e-Quip*

  Upgraded the department's database system from access to e-Quip. Restructured the data we were collecting removing double entry of data, better linked parts of data to each other for clearer fault diagnosis and wrote queries for the workshop manager. Improved on previous database by data modelling and structuring the data for easier analysis. Liaised with management and colleagues as the database is used for every audit-able action carried out by the workshop.

EXPERIENCE - ROLES

- **The Christie Hospital** — Manchester, UK
  Specialist Radiotherapy Engineer — *Dec 2017 - May 2021*
  - Responsible for corrective and protective maintenance of Elekta linear accelerators, Siemens and Philips CT scanners and Philips MR scanners. Involves high power radiofrequency microwave and x-ray generation, high vacuum systems, motor speed control, electronic position sensing and control, data acquisition, display and analysis, advanced digital imaging, cooling systems, gas systems, laser alignment, IT networking and mechanical engineering, multi-disciplinary co-ordination, and leading servicing teams.
  - Working with HT, heavy machinery, IT networks and servers (DICOM) and R&V systems (Mosaiq).
  - Ensuring quality assurance and quality control of Elekta LINACs, Philips Brilliance CT scanners, Philips Ingenia MR scanner, Siemens Confidence and Definition CT scanners to IPEM Report 91.
  - Training staff on the operational principles, QC procedures and maintenance of radiotherapy systems.
  - Writing risk assessments, training assessments and high level system documentation.
  - Leading and working with multi-disciplinary teams to deadlines.

EDUCATION

- **University of Manchester** — Manchester, UK
  Bachelors of Electrical and Electronic Engineering — *June 2017*
  Programming modules: **Assembly**, **Java**, **C**, **FPGA**.
- **Institute of Physics and Engineering In Medicine** — Manchester, UK
  Diploma (Level 6), Clinital Technology - Radiation Engineering Discipline — *December 2020*