Adnan Hafeez, M.Sc

CONTACT INFO

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OBJECTIVE

Experienced Medical Physics Software Engineer with Scrum training, and electronics enthusiast dedicated to improving workflow processes while ensuring product quality through automation. I hold a masters degree in Applied Physics and I am actively seeking an entry-level position in design & engineering.

KEY SKILLS

Web-Development Projects

- **Python Django:** Introductory competence
- **Bootstrap:** Intermediate competence.
- **Design:** Experienced wireframe desiging in Adobe XD, Photoshop, and Dreamweaver.
- **Front-end:** HTML5, CSS5, Javascript, PHP, Microsoft SharePoint, Wordpress, Joomla, Drupal 8

Computational Skills

- **Programming:** C#, C, C++, Python (OOP), MATLAB, Java, MySQL
- **Data Science:** SciKit-Learn, NumPy, SciPy, Plot.ly, Pandas, Matplotlib, Spark, Linux, MongoDB, Apache, TensorFlow, Tableau, Seaborn, Plot.ly, OpenCV, SQL Server 2014+, SQL Scripting,
- **DevOps:** AWS, Microsoft Azure
- **Back-end:** Django
- **Wireframing:** Microsoft Powerpoint, Excel, Adobe Dreamweaver, Adobe XD.
- **Version Control:** Github, Git
- **Designing:** Illustrator, Photoshop, Fusion 360, AutoCAD, Inventor, Meshmixer, LTSpice (PCB, filters, detector arrays, amplifier (op-Amp, BJT and MOSFET), Microsoft SharePoint Designer

PROFESSIONAL EXPERIENCE

2021 | present

Software Engineer

GenesisCare USA — Michigan, USA

- Lead software engineer for three clinic locations situated in Detroit, Michigan.
- Developing and maintaining various clinic-goal oriented software to tackle and find solutions to dynamic problems.

2019 | 2021

Alberta Health Services - Medical Physicist / Software Engineer

Tom Baker Cancer Centre/Foothills Medical Centre — Calgary, Alberta

- Developed first ever custom SharePoint enterprise utilizing and implemented several API microservices as workflows for customer functionality, such as automated contract renewal reminders, automatic document version control, automatic document archiving. Automatic user experience surveying and reporting.
- Built fully automated CI/CD software in Python for automatic quality assurance analysis, such as the TBCCPylinac Winston-Lutz analysis tool.
- Programmed, Implemented, tested a centralized monitoring software (in MySQL, Python, C#) which gathers key metrics specific to the radiotherapy quality assurance program from on-site quality assurance database, and identify areas of improvement, as well as predications of future failures. Used for department fail-safe planning.

2019 | 2020

Medical Physics Associate - Software Physicist

Tom Baker Cancer Centre/Foothills Medical Centre — Calgary, Alberta

- Developed Matlab models for prototyping image reconstruction software. Tested and implemented final versions in C# API for hospital wide clinical use.
- Created python software interfaces with online MySQL databases for information management.
- Created image reconstruction algorithms and DICOM organization softwares in python for quality assurance of linear accelerators.
- Co-lead the IRIS (Internal Radiotherapy Information Services) department at the cancer centre: Generate and maintain clinical AURA reporting database and SharePoint for the radiation medicine program; develop novel automation software to assist in quality assurance of Varian Linacs; investigate Eclipse 15.6 Visual Scripting environment for developing automation scripts.
- Developed scripts in Python, MATLAB, and Visual Studio C# for automation of routine clinical tasks related to patient safety.
- Developed an easy-to-use GUI (Software) for Orthovoltage treatment calculations in C# with an MVVM design architecture using Prism, and data binding.

2017 | 2019

Graduate Student - Clinical Medical Physics Research

CancerCare Manitoba — Winnipeg, Manitoba

Supervisor: Dr. Harry Ingleby

- Designed and tested software in MATLAB and Python for monthly image quality assurance of CT imaging modalities. Tests included implementing finite impulse reponse validation testing, modulation transfer function, and noise power spectrum analysis for all energies, and imaging protocols. Signal and to noise ratio's tabulated.
- Used Eclipse and Image contouring software by Varian Medical Systems to extract DICOM images, apply reconstruction filters, image segmentation and registration to prepare images for Python/MATLAB software.
- Programmed and developed a routine-based image analysis software in C++ for image segmentation and noise control.
- Wrote an extensive Python/MATLAB algorithm for calculation of modulation transfer function (MTF), Noise Power Spectrum (NPS), and tube current.

2016 | 2017

Medical Physics - Data Scientist

University of Manitoba — Winnipeg, Manitoba

Supervisor: Dr. Stephen Pistorius

- Main languages used: Python and C#
- Practical and hands-on experience writing software that utilizes machine learning aglorithms for signal processing classification problems in python.
- Developed an anthropomorphic breast phantom with accurate dielectric and permittivity properties, suitable for microwave imaging tests.
- Conducted experiments aimed at measuring dielectric and permittivity values of the breast phantoms.

EDUCATION

(2019) M.Sc in Medical Physics

University of Manitoba/CancerCare Manitoba

Thesis: Improved Quality Assurance Phantom for Characterization of Automatic Tube Current Modulation for Computed tomography Systems

(2020) B.Eng (Electrical Engineering)

Carleton University. Dean's Honours List: GPA: 3.96/4.00

(2017) B.Sc (Joint Honours in Physics and Chemistry)

University of Manitoba

Honours Thesis: Synthesis of Forskolin Analogues as selective Adenyl Cyclase Activators

PROFESSIONAL DEVELOPMENT

(2019) Varian ESAPI Workshop

(2019) Artificial Intelligence & Machine Learning (AI&ML)

(2019) Eclipse Scripting API: A Guide for Beginners

(2019) Eclipse Scripting API: Quick Wins

(2019) Eclipse Scripting-Introduction to Automation and Visual Scripting