

Daniel Al Mouiee

Radiotherapy Computer scientist at the Ingham institute for Applied Medical Research, Doctorate of Bioinformatics student at the University of New South Wales

Employment

- **Medical Physics - The Ingham Institute for Applied Medical Research** **Liverpool, Sydney**
Radiotherapy Computer Scientist *December 2020–Current*

My role involves developing tools to optimize various radiation therapy clinical processes for the South West Sydney Local Health District, as well as supporting/contributing to various medical physics research projects that involve data processing and deep learning. Such tools include

 - clinical dashboards to track breast cancer and bone metastases treatment prescription at Liverpool hospital
 - a clinical dashboard to assist radiation therapists with the scheduling of patient treatment on different machines
 - developing python scripts for the Radiotherapy treatment planning system software [Raystation](#) to provide custom solutions for treatment machine quality assurance
 - the development of the [pydicer](#) tool which facilitates the end-to-end conversion of DICOM data into a format typically used for research purposes.
 - contributing to the the [Australian Computer-Assisted Theragnostics \(AusCAT\)](#) network, including the containerisation of its sub-components, the deployment of a functional client setup at different nodes across New South Wales and Australia and further development of its federated learning components.
- **Vafee Lab - University of New South Wales** **Kensington, Sydney**
Research Associate *September 2019–December 2020*

I contributed to the development of advanced machine-learning methods and deep-learning models that leverage large omics data to find hidden structures within them, account for complex interactions among the measurements, integrate heterogeneous data and make accurate predictions in different biomedical applications. Additionally, I supported other projects in the lab group by maintaining their Google Cloud Platform resources and data pipelines.
- **Clinic To Cloud Pty Ltd** **Sydney City**
Automation Engineer *January 2019–July 2019*

I developed testing automation frameworks for Clinic To Cloud's Practice Management Software (PMS) solution for physicians, clinics and hospitals. This involved Automated API testing using tools such as Postman, developing Python scripts and the use of CI/CD tools like MS Azure DevOps. Additionally, I used Selenium with Java and Python to automate visual and functional testing of the company's software in co-operation with other developers from around the globe. I also worked on increasing the company's on-boarding efficiency by developing a Outsystems Solution for customers to register on-boarding information and swiftly begin using the system without the need to coordinate with the Customer Success team.
- **PicNet Pty Ltd** **St Leonards, Sydney**
Junior Software Engineer *February 2018–April 2018*

My role at PicNet involved developing web systems using ASP.NET Core and maintaining databases for projects with NSW Health. This included MS SQL server, PostgreSQL as well as working with SQLite3. I have managed a small team developing a RESTful API that was used for a large-scale project involving entrepreneur and investor websites. I have also developed websites using Microsoft SharePoint, with both the enterprise and personal editions of the program.

- **Parramatta Community College** **Parramatta, Sydney**
HSC Mathematics and Arabic tutor *2016-2018*
 I worked for two years as a tutor for HSC Mathematics (General, Advanced and Extension 1) as well as Arabic of all levels (Beginner, Continuous and Advanced)

Publications

Journal Articles.....

- **Classifying retinal degeneration in histological sections using deep learning**
Translational Vision Science and Technology, <https://doi.org/10.1167/tvst.10.7.9>, *June 2021*

Conference presentations.....

- **Federated Deep Learning in Head and Neck Cancer Overall Survival Prediction**
Engineering and Physical Sciences in Medicine (Oral presentation), *November 2021*
- **Deep Learning Techniques to Classify Retinal Degeneration in Histological Sections**
The Eye and The Chip World Research Congress (Poster presentation), *October 2021*

Education

Academic Qualifications.....

- **Master of Biomedical Engineering/Bachelor of Software Engineering** **Sydney, Australia**
University of New South Wales, *2016-2020*
- **Doctorate of Bioinformatics** **Sydney, Australia**
University of New South Wales, *2022-current*
 Investigating the application and optimisation of federated learning in radiation oncology

Notable Contributions.....

- **Stackoverflow:** interested in assisting other developers using Plotly's Dash tool for creating dashboards. Significant contributions to answering user questions can be found [here](#)
 An investigation to verify and validate the use of Convolutional Neural Networks in analysing visual features of histologically stained images of feline retinæ and quantify the level of retinal damage
- **Masters Thesis project:** 'Classifying Retinal Degeneration in Histological Sections using Deep Learning'
 An investigation to verify and validate the use of Convolutional Neural Networks in analysing visual features of histologically stained images of feline retinæ and quantify the level of retinal damage

Technical and Personal skills

- **Programming Languages:** Proficient in: Python, C, Java, Bash/Shell, Perl, Matlab, TeX
- **AI Skills:** Extensive experience using python-based ML/DL frameworks: TensorFlow/Keras, SKLearn, PyTorch in medical applications such as image classification and segmentation.
- **Cloud Programming:** Engineering and maintenance of Google Cloud Platform (GCP) resources utilised for Deep Learning projects.
- **Web Development Skills:** Python's Dash dashboarding tool, Django, Github/Gitlab DevOps, development of RESTful APIs for large scale projects.

- **Software Testing Skills:** Postman API testing, Selenium.
- **Database Skills:** Microsoft SQL Server, PostgreSQL, SQLite3.
- **Video Editing Software Skills:** Experience using Filmora and edited many videos published on YouTube.
- **Languages:** Bilingual in English and Arabic.