Luca Mannino

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Currently working in a clinical lab performing qPCR COVID-19 tests I have recently graduated from Leicester University with a master's in Bioinformatics and Molecular Genetics. I am very passionate and intrigued by the power coding and new computing algorithm can have in answering important biological and genetics problems. I am very excited at the prospects of doing a PhD where I might be able to use and improve my academical and professional skills.

Education

Academic Qualifications

- **University of Leicester**
  MSc Bioinformatics and Molecular Genetics, Distinction *2019–2020*
- **University of Hull**
  BSc Biochemistry (Hons) , Upper Second Class *2015–2018*

Research Projects

- **Masters Project :** *'Development of a novel blood molecular algorithm for diagnosing dementia'*

  This was a multidisciplinary project involving Neurological Science, Mathematics and Molecular Genetics university departments. The project consisted analysis heterogeneous data including Protein Biomarkers levels and Biological Data and Psychological clinical test scores in order to discriminate different patient groups. The patient groups included healthy individuals, Alzheimer Disease, Lewis Body Dementia and Vascular Dementia. To analyse the data I used RStudio, I performed both statistical analysis and mathematical modeling such as PCA clustering.
  Currently I am working with my supervisor and a team from Nottingham towards publishing a similar topic.
- **BSc Third year group project:** *'Enzyme kinetics of Xanthine Oxidase'*

  My third-year group project was on polyphenols and the enzyme kinetics of xanthine oxidase, the study was completed using a Micro-plate Reader and sigma-plot for statistical analysis. Microplate reader was used to estimate the effect xanthine oxidase has on oxidative species. The purpose of the study was to estimate the validity of polypheols in diet to reduce the oxidative species produced by xanthine oxidase rewrite!

Skills

Laboratory Based

- **PCR:** reverse PCR, q-RT-PCR and multiplex PCR used in both University and industrial setting.
- **Vector recombination:** using plasmids for multiple genetics experiments and analysed the sequencing results.
- **Enhancer trap:** GAL4-UAS system in fruit flies to study gene identification.
- **Blotting techniques:** used to to analyse DNA, RNA and proteins.
- **HPLC:** I have used HPLC-MS in University to analyse drug content in urine. While IC-HPLC in industrial setting for sugar content tests on food samples.

Programming

- **UNIX:** I am familiar in using a Linux environment and using Unix commands, I was provided with a Linux laptop from Leicester University and carried out all of my coursework with said Linux.
- **R:** I have used RStudio for statistical analysis, PCA and regression analysis.
- **Python:** I have used Biopython to parse through PDB data to access relevant information and produce desired products including calculating ATOM-ATOM distance, pymol script and a local BLAST search. Familiar with Jupyter Notebook and Github for the use in group projects.
- **Java:** Have used java to modify and study bioinformatic algorithm such as Smith-Waterman algorithm.
- **SQL:** Basic knowledge of mySQL used it for university coursework.

Softwares

- **Pymol:** Protein structure studies obtained from PDB.
- **EMBOSS:** Including GAP4 to examine/edit the assembly and plotorf to produce a plot of the open reading frames for genome annotation analysis.
- **ARTEMIS:** Carried out gene contigs annotations.
- **Proseq2:** Used to analyse and study genomic molecular evolution.
- **FinchTV:** Next Generation Sequencing data analysis.
- **RVista:** For the study of Ultra Conserved regions and possible promoter sites.

Previous Experience

- **Source Bioscience** — **Nottingham**
  Scientist — *October 2020–Present*

  I am working in the infectious disease laboratory to carry out q-RT-PCR assay to determine the presence of COVID-19 in nasal and throat swab tests. Main duties consist in nucleic acid extraction and purification (DNA/RNA), set-up of RT-qPCR assays and analysis of qPCR data. I also help with development and validation activity within the COVID-19 unit. The team consist in 1 supervisor, 3 scientists and 10 medical lab assistants, MLAs; as a scientists I help supervise the MLAs and assist the supervisor in laboratory logistics.

- **ALS foods and pharmaceuticals** — **Chatteris**
  Laboratory Technician — *2018–2019*

  Duties involved protein quantification using nitrogen analysers produced by LECO as well as sugar content quantification using IC-HPLC. My responsibilities included setting up the instruments and running calibrations as well as analysing the results produced. Troubleshooting was also an important part of the job as if the equipment would fail I would have to figure out why and how to fix it if possible. I was also carrying out routine calibration of LECOs nitrogen analyser and other equipment's such as pipettes and balances.

Interests and extra-curricular activity

- I like to improve my coding skills by completing online courses on Coursera. I have completed a course on statistics on RStudio and I am now following a course on machine learning.
- I am currently working with my masters' dissertation supervisor and a team from Nottingham University towards a paper. I am really glad and excited to be able to contribute to research. The topic is CFS biomarkers in dementia patients and my contribution is mainly data analysis such as sample size calculations, PCA for clustering analysis and statistical calculations.

References

- Academical and work references available upon request