Candidate Information

Position: Master Student
School/Department: Faculty of Exact Science in Collaboration with Sackler School of Medicine
Duration: 24 months

JOB PURPOSE:

The research will use data analytics techniques (bioinformatics, data mining, machine learning, statistics, etc.) to analyse ophthalmic medical data including parameters extracted from medical images, clinical and lifestyle data which will be used for knowledge discovery purposes, e.g., to determine the best combination of factors for diagnosis and detecting clinical change over time. Our large dataset contains clinical and imaging data of ~6000 patients monitored for up to 10 years. Some techniques for exploration include but will not be limited to principal component analysis, correlation analysis, classification, sequence pattern analysis, anomaly detection, data visualization, etc. This would best suit someone with a bioinformatics /medical statistics background who wishes to learn some data mining/machine learning techniques. The successful candidate will work under the supervision of a senior member at the Faculty of Exact Science in Collaboration with Dr. Dinah Zur and Prof. Anat Loewenstein from the Tel Aviv Medical Center where they will assist in the analysis of study ophthalmic data and research data generated by the Center.

MAJOR DUTIES:

1. Conduct research under supervision within the research project.
2. Carry out bioinformatics, data engineering, analyses, and key visualizations using methodologies appropriate to the area of research.
3. Present regular progress reports on research to members of the research group and to external audiences to disseminate and publicise research findings.
4. Prepare, often in consultation with supervisor, material for publication in national and international conferences and/or journals and presentations at conferences.
5. Assist the grant holder in the preparation of funding proposals and applications to external bodies.
6. Carry out routine administrative tasks associated with the research project to ensure that project is completed on time and within budget. These might include organisation of project meetings and documentation, etc.
7. Read academic papers, journals and textbooks to keep abreast of developments in own specialism and related disciplines.

Planning and Organising:

1. Plan details of research program in order to achieve an effective and productive synergy.
2. Plan for the use of research resources in order to ensure that facilities are available at required times.
3. Plan own day-to day activity within framework of the agreed research programme, particularly in relation to the joint work with the collaborating partners.

4. Plan in advance to meet deadlines for internal/external progress reports, conference and journal publications.
5. Coordinate and liaise with other members of the project research group over work progress.

Resource Management Responsibilities:

1. Ensure research resources are used in an effective and efficient manner.
2. Provide guidance as required to support staff who may be assisting with research.

Internal and External Relationships:

1. Liaise on a regular basis with colleagues, students and external partners.
2. Establish professional and good working relationships with technical and other support staff as well as external project partners.
3. Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration.
4. Join external networks at national and international levels to share information and ideas.

ESSENTIAL CRITERIA:

1. BSc in bioinformatics, genetics, Statistics or other fields relevant to the technical areas
2. Experience in working with omic data and bioinformatics.
3. Experience in conducting research in bioinformatics, data mining, or statistics.
4. Experience in using/developing one or more of the following data analytics techniques: principal component analysis, correlation analysis, classification, anomaly detection, sequence pattern, visualization.
5. Ability to pre-process data using data engineering approaches such as data integration, to implement data mining algorithms, machine learning models or statistics techniques using some programming languages (e.g., C/C++, Java, Python, R, etc.).
6. Strong analytical and problem solving skills.
7. Ability and willingness to travel to attend meetings with partners and conferences.
8. Ability to communicate complex information clearly both verbally and written.
9. Ability to build contacts and participate in internal and external networks.

DESIRABLE CRITERIA:

1. Experience in machine learning (especially Keras or TensorFlow for images)
2. Experience in working with medical data.
3. Experience in working with image data.
4. Experience in managing a research project.
5. Experience in writing a funding proposal

Please contact:
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