Short Description:

We are looking to hire a postdoc to work on an interdisciplinary project involving the development of AI models to quantify genetic intra-tumor heterogeneity in tissue whole slide images. This project is between the Bioinformatics Institute (BII, A*STAR), Genome Institute of Singapore (GIS, A*STAR), National Cancer Centre of Singapore (NCCS) and Singapore General Hospital (SGH). This project is supported by datasets derived from more than 5000 patients and strong clinical domain knowledge. Prior experience in deep learning is not required although candidates with deep learning experience are welcome. Training on deep learning is provided on the job. Please send your interest and CV to Malay Singh (malay_singh@bii.a-star.edu.sg) and Mahsa Paknezhad (mahsap@bii.a-star.edu.sg). Appreciate if you can forward this job description to your colleagues or to any potential candidates.

Long Description:

Position: Postdoctoral position for developing an AI model to learn and quantify genetic intra-tumor heterogeneity in the tissue whole slide images.

Project Description: We are looking for a postdoctoral researcher to work with us on a collaboration project between the Bioinformatics Institute (BII, A*STAR), Genome Institute of Singapore (GIS, A*STAR), National Cancer Centre of Singapore (NCCS), and Singapore General Hospital (SGH). This project is supported by datasets derived from more than 5000 patients and strong clinical domain knowledge. We aim to design an AI model to quantify intra-tumor heterogeneity in histopathological tissue whole slide images. Cancer cells evolve into genetically diverse clonal populations in response to immune suppression via random mutation. High genetic diversity within the tumor cells leads to poor patient prognosis and is known as genetic intra-tumor heterogeneity (ITH). ITH is usually quantified via genomic methods. In this project, we will develop an AI model to quantify ITH using the imaging modality. We are looking for a creative mind with strong communication skills and a team player who can lead the project from forming ideas to methods development leading to publishing results in top-tier journals.

What is in it for you? You will be working in a team of AI researchers who have a deep understanding of the fundamentals of deep learning and have considerable experience in applying deep learning to different problems. Our group has a well established reputation in developing AI solutions for digital pathology. You will have the opportunity to learn and hone your AI skills through this project as well as by learning from other on-going projects in the team. You will be trained to be in the very niche area of applying deep learning for digital pathology applications. You will learn both AI and digital pathology knowledge in this project. This will be the differentiating factor for you as an AI scientist at our lab. You will also learn to sharpen your communication, collaboration, project management and leadership skills.

Responsibilities

1. Develop AI methodologies to perform computer assisted diagnostics for digital pathology.
2. Work closely with clinicians to fully understand the digital pathology datasets including histology slides as well as genomic data.
3. Design and develop the AI model to quantify the ITH in the histopathological images.
4. Design and conduct the experiments to assess the proposed AI models' performance.
5. Collaborate with the team members via discussions, study groups, guiding students/ interns/research officers.
6. Periodically present the progress to the group and submit the research findings to top-tier journals and conferences

Requirements

1. Ph.D with a strong background in Computer Science/Mathematics/Statistics/Biomedical Engineering or relevant fields.
2. Prior knowledge in machine learning and prior domain knowledge in digital pathology is NOT REQUIRED. Training for these domains will be provided on the job.

3. Experience and versatility in programming especially in python.
4. Familiarity with PyTorch and/or TensorFlow is NOT REQUIRED but would be a plus.
5. Good communication skills, a team player and willing to share ideas and knowledge with peers.
6. Candidates should be able to work in a fast paced environment.

For more information, please visit the CVPD websites: http://web.bii.a-star.edu.sg/~leehk/ and https://www.a-star.edu.sg/bii/research/ciid/cvpd