

Pietro G.A. Aronica

Senior Post-Doctoral Research Fellow

pietroa@bii.a-star.edu.sg

Bioinformatics Institute

I studied at Imperial College for my MSci in Chemistry and then my MRes and PhD in Chemical Biology, and have been working in Singapore after that. I considered quitting chemistry because I didn't like lab work but then I found out about computational chemistry and I have been coding to study molecules ever since. I work in protein design and engineering, and in my spare time I write and listen to too much music.



In this course we will be learning the basics of the **Unix Shell**. If you are only used to Windows and GUIs, this will be your first step towards operating many of today's scientific tools and methods. We will learn the most important commands, how to run a script, and a few shortcuts to make your life easier.

Shruti Vijay KHARE

Post-Doctoral Research Fellow

shrutivijayk@bii.a-star.edu.sg

Bioinformatics Institute

I have completed my PhD in Bioinformatics from the Indian Institute of Science (IISc), India. My research experience includes Protein structure modeling and Next Generation Sequencing data analysis. I am a senior postdoc at the Bioinformatics Institute, A*STAR and currently work as a genomic data curation lead for GISAID. I enjoy reading and dancing.



During this workshop I will be conducting a session on Building Programs with **Python** where we will understand the basic components of a program and then put them to use for data processing and visualization.

Niranjan Shirgaonkar

Bioinformatics Specialist

niranjan_shirgaonkar@gis.a-star.edu.sg

Genome Institute of Singapore

I am a bioinformatician working at the Genome Institute of Science, A*STAR where I study tumor evolution and disease progression. I usually work in close collaboration with clinicians where we combine our insights on biology. When I am not studying cancer, I love playing computer games and reading fiction.



Genetic variation defines how we look, grow and adapt to our surroundings. It influences how susceptible we are to some diseases and how quickly we can recover from them. This workshop is intended for beginners where we will learn more about **genetic variation** and how to use computational tools to identify variations in genomic data.

Maxime HEBRARD

Research Associate

hebrardms@gis.a-star.edu.sg

Genome Institute of Singapore

Coming from a bachelors in Biology, I switched to Bioinformatics and Computer Science in Master. Currently, I am an Assistant Researcher at Genome Institute of Singapore, working in the National Precision Medicine Program. I like to present myself as a “solution architect”, mainly focused on building software and infrastructure to support research in human biology, with a particular interest in user interface and user experience (UI/UX). I spend years discussing with colleagues, reading and learning from my own experience about best practices. Once I discovered Git, the benefit was clear, but using the tool properly took me some time. Now, I am using Git for all my projects, irrespective of the work being a solo project or a collaborative effort. In this course I’ll try to share with you how version control tools can help your work and some of my tips to make **Git** easier.



Mohammad Shaheryar Furqan

Senior Research Fellow

msf@nus.edu.sg

National University Singapore

I have a master's in Signal Processing and PhD in linear predictive learning from NTU Singapore. Currently, I am working as a Senior Research Fellow at the YLL school of medicine, NUS, where my main research focus is on machine vision and its application to medical imaging. I also hold a joint appointment as a Senior Research Fellow at the AIO Innovation Office, National University Health System, where I lead the team of data scientists who are developing and deploying various machine learning models for real-world clinical use.



For this workshop, I will be covering basic **image processing for diagnostics**. I will share with you a simple machine vision pipeline. Hopefully, by the end of the session, you will know how to read and write images, how to perform basic image manipulations like resizing, scaling, and rotation as well as how to use these image manipulations to increase your data set. Additionally you will also learn how to use the processed images to train a very simple machine learning image classification model.

Vishal Sharathchandra Bajpe

Quantum Developer Community Advocate

vishal.bajpe@ibm.com

IBM Quantum | Qiskit

I just joined the IBM Quantum and Qiskit team as a Quantum Developer Community advocate and am currently based in Singapore. I am a Qiskit advocate with an avid interest in supporting open-source educational and community initiatives globally with a special interest towards Quantum Challenges. Off work, I am usually on food expeditions hunting for new types of dishes or experimenting in the kitchen with various cuisines (which may or may-not turn out to be always edible).



This workshop will give a brief inspiration and **introduction to the world of quantum computing**, exploring the possible potential of such a new paradigm of computing. This will include an introduction to the Qiskit SDK as a tool to program quantum computers in cloud settings using the IBM Quantum Experience platform. This will be followed by a brief

introduction to one of the Qiskit application modules; the Qiskit Machine Learning module as a tool to rapidly prototype and experiment with newer types of models that leverage quantum computing. I will be happy to talk individually about Qiskit and link you to the amazing open source resources and community built around Qiskit, for you to continue your pursuit in this field!

Hui Ting Grace Yeo

Post-Doctoral Research Fellow
grace_yeo@gis.a-star.edu.sg
Genome Institute of Singapore

I'm a post-doctoral fellow in the Laboratory of Systems Biology and Data Analytics at the Genome Institute of Singapore. My research interests are in the integration of machine learning methods with more traditional –omics analyses for studying complex biological systems. I currently work on developing new methods for analyzing spatial –omics data. I love written sci-fi/fantasy and pour-over coffee. I will be supporting Maxime in the session on version control with Git.



Ashar J. Malik

Senior Post-Doctoral Research Fellow
asharjm@bii.a-star.edu.sg
Bioinformatics Institute

I have a PhD in computational evolution from New Zealand and love trying to understand how living things relate to one another. At the Bioinformatics Institute, I work in the area of Precision Medicine and Quantum computing. When I am not at my desk, I can be found exploring and photographing nature, with one of my favorite places in Singapore being the Sungei Buloh nature reserve.



Apart from my research I like putting workshops like this together. This year, I will not be teaching, but will be helping with all the sessions. You are welcome to discuss with me all aspects of this workshop (and photography if you like).