

REPORT
SEMINAR ON MATLAB AND SIMULINK IN ACADEMIA
MILLENNIUM GLOUCESTER HOTEL, LONDON
TUESDAY 06/07/2010

MATLAB and Simulink are the software developed by the MathWorks several years ago in the USA and now have become one of the most usage mathematical-based software in the world. With currently thousands of universities using them, MathWorks has also build up branches and offices around the nation to give support and guidance. One of the means is by organizing a free one day seminar, targeted to the academicians (lecturers, researchers, post doctorates and post graduates) to highlight some of the functions available to raise understanding in using these technologies. Taking place in Millennium Gloucester Hotel, London Kensington, MathWorks UK organized this seminar with the objective to give demonstration through presentation and case studies on how the products can be used to solve image processing, data analysis, visualisation and handling large data sets problems as well as modeling multi-domain systems.

After registration took place between 9.15 to 9.45 am, the seminar started with an introduction about MathWorks and MATLAB by the Senior Account Manager. The demonstration started at 10.00 am by GianCarlo Pacitti, Application Engineer on Technical Computing in MATLAB. It covers some fundamental tasks in MATLAB like importing, visualising and analysing data from different sources, publishing reports and other tools of MATLAB routines. Even though the functions are basic, some of them are quite useful, for example the importing files step shown is the quickest method compared to what usually being made, and users can publish the results automatically from MATLAB without cutting and pasting them into other word processors.

Next session took place after the coffee break by the Application Engineer, John Walley on Quantitative Image Processing. Here, Image Processing and Image Acquisition Toolboxes were highlighted with a simple case study on how to track a torch light beam, from static figure to live video imaging. A Simulink function called Video and Image Processing Blockset is also mentioned as it can also be used to develop same algorithm but not thoroughly explained due to the short time.

Some master classes were also prepared with sessions on:

- Parallel Computing with MATLAB
- System Level Modelling with Simulink
- Global Optimisation and Symbolic Computing
- Multi-Domain Modelling

and they started after lunch. I attended the first and the third session as I did not plan to use Simulink for my research (covered in second session) and the last one used Simscape language which is quite new. Parallel Computing session was presented by John Walley and it covers on how to parallelizing tasks in MATLAB in handling large datasets, which is important to accelerate data analysis. Instead of doing serial tasks, they can be done in parallel to optimize processor usage which can speed up the process and this can be done

by recalling some functions. Although useful, but in my opinion, it is not suitable to be applied as our datasets is not that large (he talked about thousands) and this process can lagged some other work that also being carried out by the same computer.

The last parallel session, also conducted by John Walley is on Global Optimisation and Symbolic Computing, which is the most relevant with my research. He covered on a newly available toolbox on Symbolic Computing which speeds up any tasks involving mathematical and symbolical functions and equations, which can be directly calculated (this function reminds me of previous mathematical software like MathCAD). It can be recall using mupad functions in MATLAB and can also be transferred directly into typed report. Apart from that, fitting toolboxes which are important in my research like the Curve Fitting, Model Fitting and Surface Fitting are also being highlighted. I took this opportunity to ask and discuss with the presenter on my research as these toolboxes can be use to reconstruct the surface. We exchange contact email for further discussion.

As a conclusion, I'd obtained a lot of knowledge in handling MATLAB software by attending this seminar, and get the opportunity to widen the network with other researchers and MathWorks United Kingdom engineers, whom in charge with the software development. This will help me in developing the algorithm to finish my research.

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