

ZAHRA FARID USES APPLIED MATHEMATICS AT HORIBA-PTI

Speech delivered at an Employer Event in December 2014 by Applied Math and Microbiology student Zahra Farid, who is currently completing at 12 month internship at HORIBA-PTI in London, ON.



I am proud to be one of the many science students who have secured an internship position through the Science Internship Program at Western.

But before I begin sharing my experience, I would like to thank the team at the Student Careers Service Centre for inviting me to speak today. It is a real honour, thank you!!

I began my internship journey in July as an Applications Lab Technician at Photon Technology International, or PTI, a company that specializes in fluorescence technology. PTI designs and engineers, manufactures, and markets instruments which include fluorescence spectrofluorometers, microscope-based ratio spectrofluorometers, and fluorescence imaging systems used in labs for research, health care, environmental science, and other applications.

About a year before I began my internship term, PTI became acquired by another scientific instruments company called HORIBA Instruments Inc. So, I'm actually employed by HORIBA-PTI, which is just as impressive as it sounds, and here's one of many reasons why. You will remember the recent scientific advancement by the Rosetta Space Probe when it released a lander onto comet 67P. Just after the successful landing of Philae, it was announced in a press

release that out of the 11 instruments in the Rosetta space probe, the optic based Ultraviolet Imaging Spectrometer known as the ALICE instrument has actually been equipped with a HORIBA Jobin Yvon diffraction grating. ALICE's role is to characterize the comet's nucleus and coma by recording FAR UV spectra in this region. HORIBA, my employer, is contributing to the extraordinary discoveries to be made by this instrument. So yes, this is a big deal.

But aside from this grand association, the union has proven successful as PTI received praise from HORIBA, being recognized as a leader in Fluorescence Technology. The team at HORIBA-PTI London consists of hard-working and skilled individuals; they deserve the recognition and I am proud to be part of such a team.

Now, you're probably wondering, what is my role in all this?

Well, my position at HORIBA-PTI is that of an Applications lab assistant, who works in the Fast Kinetics Applications lab under the supervision of Dr. Alex Siemiarzuk, the head of Applications research.

My job involves, but isn't limited to, conducting measurements and performing analysis on fluorescence samples for prospective customers (from all over the world) using our fluorescence intensity-based and time-resolved spectroscopy systems. Some of the experiments I have performed so far include steady state fluorescence emission and absorption measurements, fluorescence lifetime measurements, and quantum yield measurements of upconversion. Each experiment is different from the previous one, as every customer has their own specific application *needs*. This is what makes my job so engaging and rewarding. I get to correspond with individuals from all over the world, learn new modules and applications of our systems, and if I'm lucky, receive the chance to be included in a publication.

I have learnt how to operate different modules of our fluorescence spectroscopy systems and to control parameters within each module using our FelixGX software program. With these technical skills in my pocket, I am qualified to demonstrate the equipment and train others, such as sales personnel, on the functions of each system and how to operate them.

And when I am not conducting experiments or training sales personnel, I help the quality control and service team to test equipment and troubleshoot problems that arise within a system.

My background in applied math helps me in understanding the mathematical details of optics and data analysis, which has been valuable to my learning experience. I have also been able to use my analytical skills towards investigating and helping solve discrepancies in acquired data. This internship for me is a platform to apply the knowledge and skills I received in school, and also an opportunity for me to continue to learn and grow as a science student.

I have learnt a lot so far about fluorescence spectroscopy and its applications. I have gained valuable skills like fluorescence data analysis, fluorescence spectroscopy system troubleshooting, and system training.

I have had the chance to meet and learn from the diverse group at HORIBA-PTI, and network with members of the company from our New Jersey office and with HORIBA executives from Japan.

From this internship, I have also acquired a strong interest in optics and electronics, areas that are different from, but complementary to my programs of study. I intend to pursue these subjects in my academic career, to continue my education in these fields and to contribute what I have learnt to bigger and more advanced projects!

These are the opportunities that an undergraduate student will find exclusively through an internship. And on that note, I would like to end by thanking everyone involved in this wonderful program.

I want to thank the team at Western's Student Career Services Centre for providing students with valuable instruction, encouragement, and advice, which effectively prepares them for the hiring process. Thank you for all your dedication and hard-work!

I'd like to thank my supervisor, Dr. Alex Siemiarczuk, for giving me this internship, the opportunity to have the best experience in undergrad. Also thank you for your continuous guidance and support, I am lucky to work with a mentor like you!

And thank you to our manager, Brian Holme, for being everything a good director ought to be!

Lastly, I want to thank all of you, without whom the Internship programs would not be possible.

THANK YOU!

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