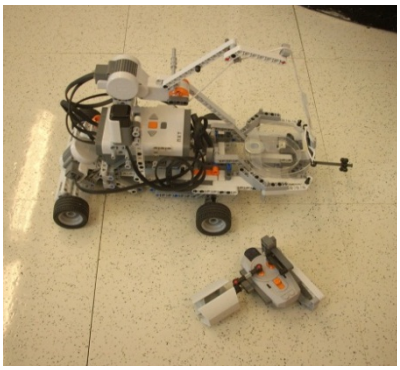
2011 BU RET Nuggets for Ned Dawes

I saw the advertisement for the BU RET Biophotonics program and was immediately interested in applying. One of the possible projects was building and programming a Lego NXT Mindstorm robot. I use the Lego robots in my classroom and expected this program would help me learn more about them.

After being accepted into the program, I was a little nervous about exactly what was going to be expected because I had no idea what "biophotonics" was. The first couple of days there was a lot of background information provided. I meet my teacher partner for the project as well as the other teachers. At times it seemed overwhelming as to what I needed to get accomplished within six weeks. It was helpful to talk with the other teachers in the program and share ideas and suggestions.

When I was introduced to my lab, the doctoral candidate who was my point of contact was great and took his time explaining my project. Although much of the technical aspects of the project went over my head, he gave me enough of an understanding to help quell some of my fears and I was excited to start. He gave me a couple of technical articles on the basis of my research. It was a challenge to read the articles because they were very dense with technical terms I have never experienced. As I continued to read more articles, I became more comfortable with the information being presented and could see how it applied to my project. I also attended the weekly lab staff meetings during which two of the members would present updates on a current publication or their research. It was interesting to observe the professor who led the lab, and how he managed the meetings and his staff. When I met with the professor, we would talk about his teaching style and how it compares with my own.

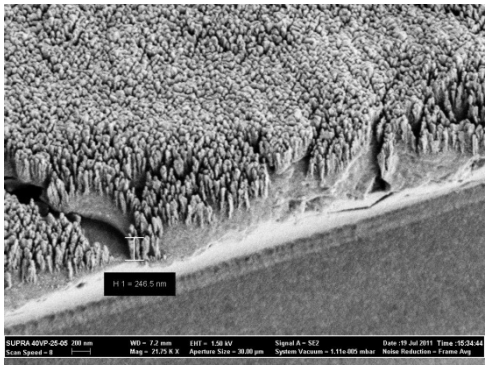
Over the next several weeks I was quickly able to gain a better understanding of exactly what I needed to complete as part of my research. All of the people in my lab were wonderful and would always be willing to help me. In particular, there were three members of the lab that I worked with and we immediately struck up a great friendship. Throughout the rest of the summer and since leaving BU, I have stayed in touch with these new friends.



I had the opportunity to design, build, and program using the Lego NXT Mindstorm robots. This experience provided me with additional insight into the capabilities of this kit well beyond what I had experienced with my students. I was able to use new sensors on my robot that allowed the ultimate mission to be accomplished.

Along with the lab work, I also enjoyed the weekly educational seminars. Some of the information I found helpful included how to bring technology into my classroom and Project Based Learning.

In the end, we developed a sensor chip that could detect trace amounts of an explosive vapor. The chips could be delivered to the testing site via our remotely controlled Lego robot car. Based on our results, next steps would be 1) to continue with the research to better refine the fabrication of the chip to make it easier to use and see if its sensitivity can be increased, and 2) to investigate the use of a large-scale robot that would be able to bring the chip close to the possible explosive material located at different heights.



Having started the summer a little apprehensive about exactly what the RET program was about, I quickly found that I truly enjoyed the entire process. I found that I had to be flexible and continually stretch myself and learn new things that were outside my typical knowledge area. It was exciting to work with great people not only from my lab but also from the BU community. I was energized to come to BU every day to learn new things and experience cutting-edge research technology. I would recommend the BU RET experience for any teacher who wants to have a stimulating summer. Give yourself time to adjust to a university laboratory environment. Trust that you will absorb the new technical information. Enjoy the unique experience.