EE/CprE/SE 491 WEEKLY REPORT 1 - sdmay18-24

9/3/17 – 9/9/17

Project title: Optical force transducer for visualizing cell mechanotransduction in 3D

Client: LIOS Lab
Advisor: **Prof Meng Lu**

Team Members/Role:
Quan Wang --- fabrication and process development
Yalun Tang --- fabrication and process development
Jiameng Li --- theory and numerical modeling
Qinming Zhang --- theory and numerical modeling

- **Weekly Summary**

In this week, we started to contact with our advisor prof Meng Lu and discuss with him about the planning and role settings for our senior design project. Prof Meng Lu also assigned us some related papers and a textbook chapter to read.

- **Past week accomplishments**

- Yalun Tang:

1. Finished the reading about the assigned papers and book chapters and understand the working principle of the optical biosensor we are going to develop.
2. Learned how to handle the optical fibers by watching the teaching videos.
3. Finished reflection 1

- Quan Wang:

1. Understood the principle of optical fiber, read the book that professor assigned, and watched the tutorial of preparing bare optical fiber
2. Finished the team reflection 1 to assign role to each sub-group in the team

- Jiameng Li:

1. Watched the tutorial of using Comsol and reviewed the analysis of wave optics function simulation
2. Finished reflection 1, and understood the role of individual contribution in the team

- Qinming Zhang:

1. Read the material from the email, understand how the transducer work. Reviewed how to use solid work and then prepare to design the fiber's holder.
2. Learned how to use the COMSOL from youtube.
3. Finished reflection 1.

- Group:

1. Contacted with Prof Meng Lu to have the first weekly meeting on Friday morning
2. Had a group meeting to read two reflection materials and discuss them
3. Discussed about the presentation

- **Pending issues**
  - Device issue: trying to get the newly version of Comsol to create numerical model
  - Function issue: discover the correct optics function to apply in Comsol
  - Optical fiber issue: find the radius of the optical fiber

- **Individual contributions**

Team member	Contribution	Weekly hours	Total hours
Yalun Tang	Presentation	8	8
Quan Wang	Planning for the following week	8	8
Jiameng Li	Prepare the presentation, learned comsol	8	8
Qinming Zhang	Prepare the last part of our presentation	8	8

- **Plan for coming week**

Yalun Tang and Quan Wang: We will continue working on preparation of optical fiber. The steps will be stripping the jacket, buffer, and cladding layers.
Jiameng Li and Qinming Zhang: We will review the comsol project files and create a numerical model for the optical fiber and nanoparticles.

- **Summary of weekly advisor meeting**

We clarified our goal of September, and assigned team members into to two separate sub-team which are simulation and fabrication. We set up the project plan of the first semester, prepared

the instruments of future experiment, bought the optical fiber and complementary tools, and watched the tutorials of handling optical fiber.