Force Sensing Forceps for Cochlear Implant Surgeries

Advanced Computer Integrated Surgery

Checkpoint 1

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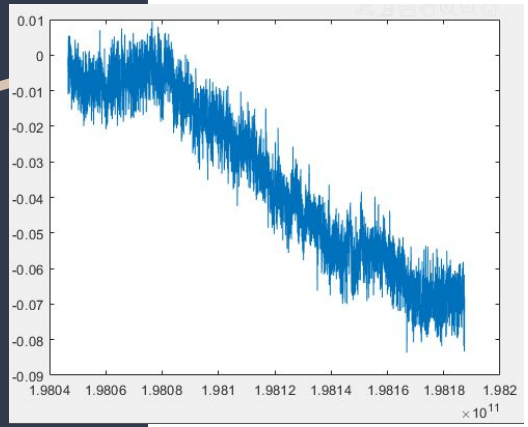
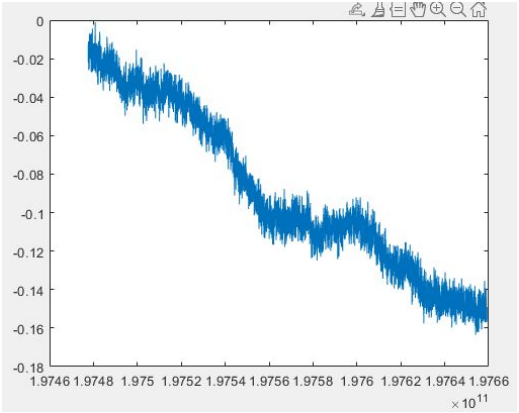
1. (New) Force Sensor data validation

- Drift: Calculated Slope values [**0.068, 0.1397, 0.416, 0.069, 0.1811**]

xPlot: Time (in S)
yPlot: Force(in N)

Wittenstein HEX 21 (6 DoF)

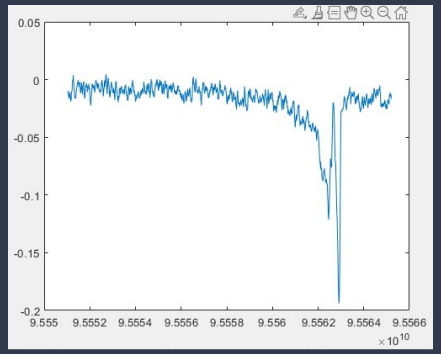


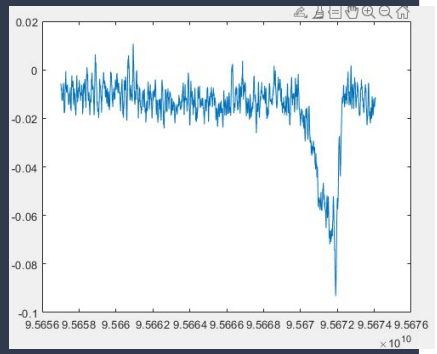


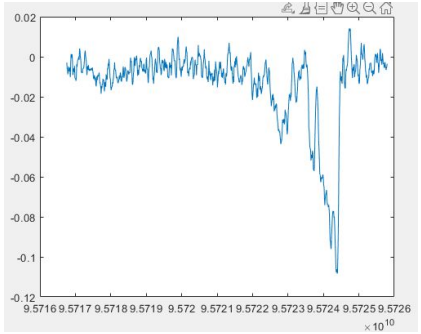
Recorded Data

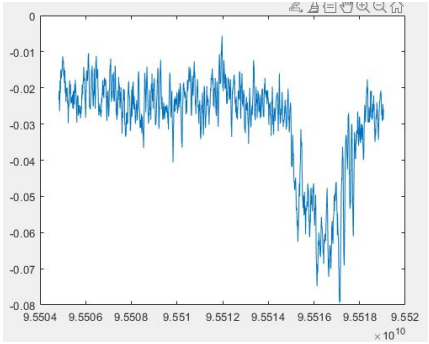
Electrode Sensing (by Dr. Deepa)

- **Max Force = 0.085N (Fz)**
- **Angle of the Force = 60 degrees**
- **Actual force on the Cochlea = 0.17N**

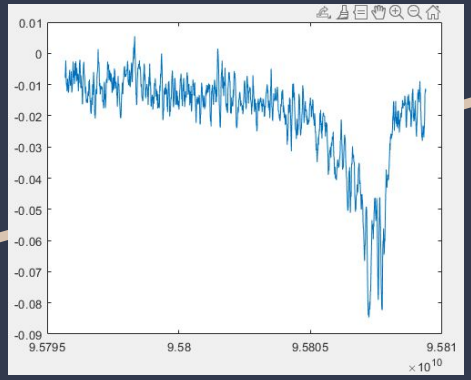


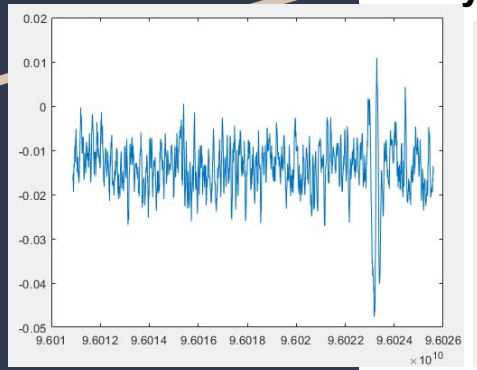


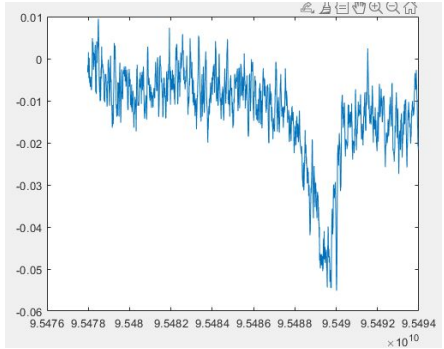


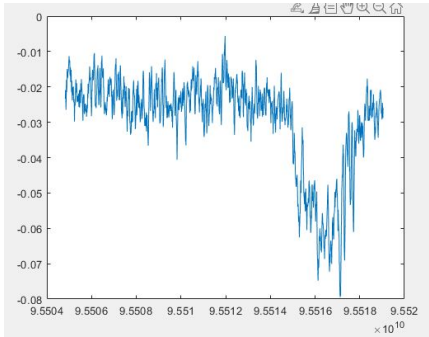


xPlot: Time (in S)
yPlot: Force(in N)



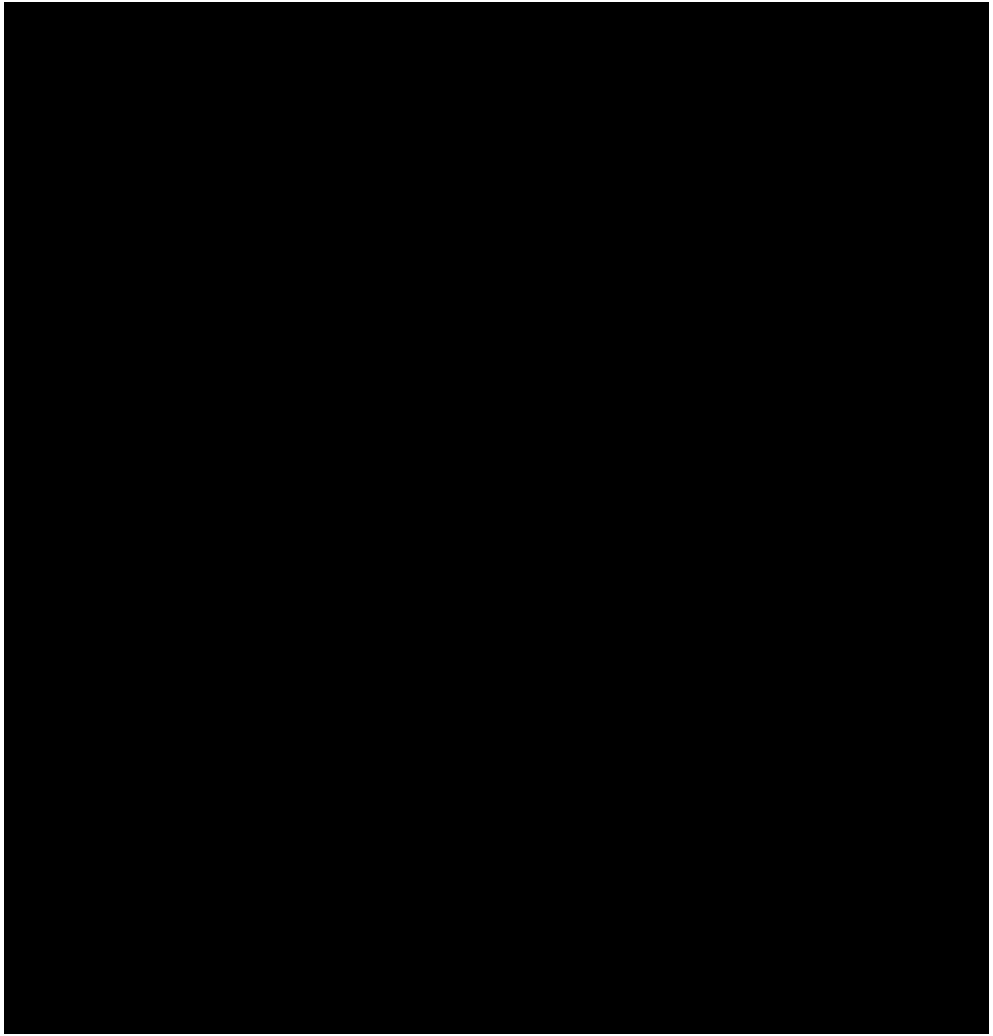




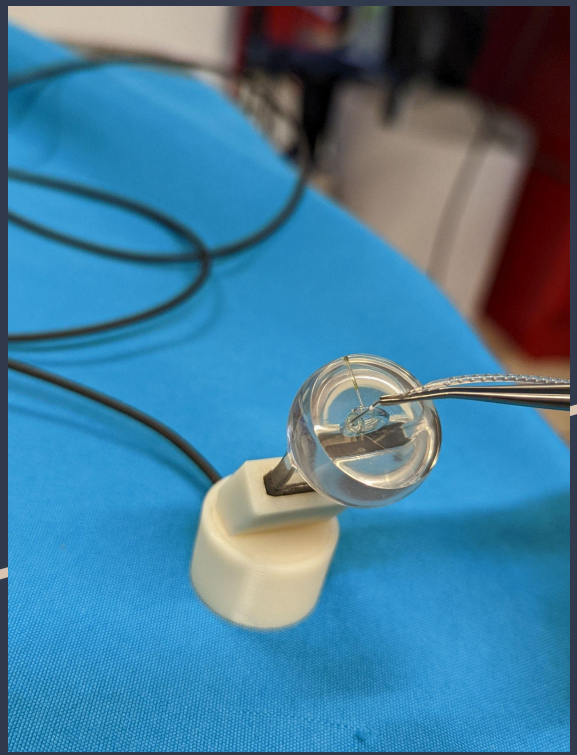


2. Gamma Sensor

ATI Nano 43



3. 3-D printed Mountings



Next Milestones:

1. Reduce the electrode jerk by mounting
2. Calibration procedure of the gamma sensor and the force sensor
3. Comparing both sensor readings
4. Attachment of the forceps and calculating gamma readings