# Essay on my Research Experience

I have two main research experiences: one is in my PhD study and I focus on hydrogeophysical inversion algorithm development and rock physics research; another one is in my undergraduate study and I focus on machine learning and Magnetotelluric data processing. I will introduce my research in detail in following part.

**Rock physics (during PhD):**

**1)** Research project in simulating self-potential signal. I am the research assistant for the ACS Petroleum Research project “Factors Controlling the Streaming Potential of Heterogeneous Porous Rocks in Two-Phase Flow”. For this project, I mainly use COMSOL to simulate the responses from the heterogeneous porous rock and measure the self-potential signal through laboratory setup with probes. The research for this project is ongoing.

**2)** Pore-scale numerical simulation of complex electrical resistivity.