Simon’s Conclusion

The Linear Velocity Transducer used in this lab had a sensitivity of 2.96 Volts per inch, making it sensitive enough to be useful in most dynamic measurement scenarios under an inch. A major benefit of the LVT system is the lack of input voltage required – the coil is able to provide its own power output directly to an op-amp, reducing the complexity of the metrological system.

Linear Varying Differential Transformers provide the ability to measure under static conditions, at the expense of added complexity – there is a required input of a periodic alternating current of a specific frequency which may not be available or easily set up in some applications outside of a lab, nor may the diode rectifier bridge be available. LVDT systems have a bandwidth – a limited frequency range of measurement capability. The larger the bandwidth, the lower the resolution of the sensor. The bandwidth of the LVDT system used in this lab was roughly 47 kHz. The mass of the core in an LVDT must be considered along with the electrical properties when applied to a moving system – the core may have enough weight to impact measurements.