Electrocardiography

Over one century removed from its birth, the electrocardiogram (ECG) remains an essential, non-invasive, and cost-effective diagnostic tool to date. ECG interpretation competency requires a solid knowledge base of electrophysiologic principles coupled with experience. Accurate ECG interpretation can provide insights into an individual's electrocardiac activity, including the underlying rhythm, structural changes, and even evidence of evolving or prior myocardial injury. Its ability to instantaneously evaluate cardiac electrical activity has shaped and continues to inform medical management.

Deep learning models can be trained to be able to recognize patterns consistent with various rhythms. Recent work has shown their capabilities to extend beyond simple rhythm analysis, but to also include the detection of reduced ejection fraction, assessment of serum potassium levels, prediction of age and sex, prediction of atrial fibrillation, and identification of unique cardiac pathologies such as hypertrophic cardiomyopathy. Perhaps even more exciting, these models are capable of improving their recognition of various unique patterns making their potential diagnostic yield unparalleled.

➢ Specifying the environment (PEAS):

- **PEAS: Performance measure, Environment, Actuators, Sensors**

➔ P : Symptoms finding, disease diagnosis

➔ E : patient , hospital

➔ A : test , treatment

➔ S : heart rate pulse sensor , IOT sensor

➢ Environments Types :

- ➔ O : fully observable environment
- ➔ D : deterministic environment
- ➔ E : sequential environment
- ➔ S : static environment
- ➔ A : multi-agent