

Thyroid Disease Classification Using ML

Define Problem/ Problem Understanding

Business Requirements

The business requirements for a machine learning model to predict thyroid disease include the ability to accurately predict thyroid disease. Business requirements, also known as stakeholder requirements specifications (STRS), describe the characteristics of a proposed system from the viewpoint of the system's end user like a CONOPS.

Based on the scan results, minimize the number of false positives (wrong thyroid disease confirmations) and false negatives (thyroid is there but got as not thyroid disease). Provide an explanation for the model's decision, to comply with regulations and improve transparency.

You don't need any special preparations for a TSH blood test. If your health care provider has ordered other blood tests, you may need to fast (not eat or drink) for several hours before the test. Your provider will let you know if there are any special instructions to follow.

A TSH test is used to find out how well your thyroid is working. It can tell if you have hyperthyroidism (too much thyroid hormone) or hypothyroidism (too little thyroid hormone) in your blood. Pregnancy also affects TSH levels. They are often a little low during the first three months.

But sometimes, thyroid disease develops during pregnancy. If you develop thyroid disease during pregnancy, your provider will monitor your condition through your pregnancy and after your baby is born.

A thyroid stimulating hormone (TSH) test is a common blood test used to evaluate how well the thyroid gland is working. The thyroid gland is located at the lower front of the neck. TSH is produced by the pituitary, a pea-sized gland located at the base of the brain.

When the thyroid gland isn't producing enough thyroid hormone (a condition called hypothyroidism), the pituitary gland produces more TSH in an attempt to stimulate the thyroid and increase its production of thyroid hormones. If the pituitary gland isn't functioning properly, it may produce too little TSH and this can result in hypothyroidism as well.

If the thyroid gland is producing too much thyroid hormone (a condition called hyperthyroidism), the pituitary gland produces less TSH in an attempt to decrease the thyroid's production of thyroid hormones.

Symptoms of hypothyroidism in children include tiredness or fatigue, dry skin, constipation, slow growth, and delayed pubertal development. Hyperthyroidism can cause unexpected weight loss, a rapid or irregular heartbeat, sweating, nervousness, and irritability.

TSH testing is used to:

Diagnose and monitor the treatment of a thyroid disorder. Help evaluate pituitary gland function your doctor may order a TSH test if your child has symptoms of hyperthyroidism or hypothyroidism, or shows signs of an enlarged thyroid gland.

<https://kidshealth.org/content/dam/patientinstructions/en/images/bloodTest-400x760-rd1-enIL.gif>

<https://kidshealth.org/content/dam/patientinstructions/en/images/bloodTest-400x760-rd1-enIL.gif>