REPORT – 09.06

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Overview

In this development iteration, we focused on refining both the front-end and back-end of the application. The main goals were to improve the user experience, address previously identified bugs, and enhance the interpretability of model outputs through SHAP values. Additionally, a new classification feature was introduced to provide a clearer overall decision.

Current Status

The UI has been significantly improved and is now built using **React**, offering a more responsive and interactive experience. A dedicated **FastAPI** backend has been created to handle data processing, model execution, and communication with the front-end. This architecture improves modularity, performance, and maintainability.

The implementation of **SHAP values** has been reworked to provide more reliable and interpretable visualizations. A final **"Verdict"** label — *Relevant* or *Irrelevant* — has been added to clearly indicate the model's overall assessment of the input.

Issues Encountered

While earlier bugs (such as the missing abstract display) have been addressed, a new issue has emerged: SHAP value visualizations are not displaying colors for entire words as intended. This affects interpretability, especially when analyzing which tokens the model considers most impactful.

Planned Fixes and Improvements

In the upcoming update, we plan to:

- Fix the SHAP rendering bug to ensure consistent color highlighting across full words.

- Continue refining the front-end for clarity and performance.

- Validate the verdict logic across multiple examples and edge cases.

Next Steps

The next development phase will involve:

- Debugging the SHAP color mapping issue.

- Adding support for batch processing or comparison across multiple inputs.

- Conducting internal testing to verify UI stability and model decision accuracy.

The project is steadily progressing toward a more polished, interpretable, and user-friendly tool.

UI

SHAP Value Interpretation

Choose a Topic:

CD011975

Choose an Article:

Abnormal biochemical serum screening versus 2nd-trimes

abnormalbiochemicalserumscreeningversus2nd-trimesterultrasound-detectedminoranomaliesaspredictorsofaneuploidyinlow-riskpatients.tocomparetheyieldofmultiple-markerbiochemicalscreeningwiththatofminorfetalanomaliesobservedonultrasoundfordetectionofaneuploidyinlow-riskpatients.

Verdict: Irrelevant

Top 5 Contributing Words (for Relevancy)

" i": -0.2808

" i": -0.2808

" i": -0.2808

" i": -0.2808

" i": -0.2808

SHAP Value Interpretation

Choose a Topic:

CD012599

Choose an Article:

Sperm chromosomal abnormalities in patients with unexpl

Sperm chromosomal abnormalities in patients with unexplained recurrent abortions.

Abstract:

Cytogenetic studies showed that about half of concepti were chromosomally abnormal in first trimester abortions. Sperm chromosomal abnormalities in men with normal karyotype could occur during spermatogenesis. The objective of this study was to evaluate sperm chromosomal abnormalities in patients with unexplained recurrent abortions. A total of 14 couples with normal karyotype, and negative workup for endocrine, immune and anatomical causes of recurrent abortion was investigated. Semen analysis was performed and chromosomal abnormalities were assessed by fluorescent in situ hybridization for chromosomes 13, 18, 21, X and Y. The average number of abortions was 5.8. The incidence of chromosomal abnormalities was 16.5% that was higher when compared to baseline (4.6%). In conclusion, a high rate of sperm chromosomal abnormalities was observed in recurrent abortion patients. These abnormalities might form during spermatogenesis since all patients had normal karyotype. Sperm chromosomal abnormality analysis can be included into recurrent abortion workup when no other cause is detected.

SHAP highlighting data is not available for this article.

Verdict: Relevant

Top 5 Contributing Words (for Relevancy)

Top contributing words data is not available for this article.