

Autism Spectrum Disorder (ASD) Screening Classification Project

Developing a Predictive Model for Early Diagnosis and Intervention

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Organization: Creative Minds Autism Foundation- Using Paper based Solutions for motor improvement



Purpose: Develop a predictive model to identify children at high risk of ASD

- **Key Objectives:**

- Enable early diagnosis and intervention
- Improve resource allocation for therapeutic interventions
- Create affordable, accessible screening tools

- **Project Significance:** Addresses late diagnosis, cost barriers, and resource allocation challenges

Stakeholder Overview

- **Creative Minds Autism Foundation:**
 - Non-profit organization
 - Specializes in developing affordable, paper-based therapeutic tools
 - Focus on assisting with walking, coordination, and sensory integration
- **Current Challenges:**
 - Late diagnosis delaying critical interventions
 - High costs of traditional diagnostic methods
 - Difficulty identifying children who would benefit most from interventions

Project Goals

- **Primary Objectives:**

- Identify high-risk children based on behavioral markers
- Prioritize children for paper-based therapeutic interventions
- Optimize allocation of foundation's limited resources

- **Expected Outcomes:**

- Earlier intervention opportunities
- More efficient use of resources
- Reduced financial barriers to diagnosis

Dataset Overview

- **Source:** Autism Screening Data Combined
- **Features:**
 - 10 behavioral markers (A1-A10)
 - Demographic information (Age, Sex)
 - Medical history (Jaundice, Family ASD history)
 - Target variable (Class: YES/NO)
- **Size:** 6,075 records

Understanding the Challenge

- . Expensive Diagnostics Procedures.
- Difficulty matching children to their appropriate interventions.
- Limited resources for widespread Screening.
- Late Diagnosis(average age: 4-5 years)

Our Approach

- Identified key behavioral markers.
- Focus on early Identification for paper-based interventions.
- Developed predictive model with 85% accuracy.
- Analyzed 1040 screening records.

Key Findings

- Model Performance:
- All models have good recall (important for medical screening).
- Random Forest models shows the best overall performance.
- Precision reduces false alarms.
- Top predictors;
- Family ASD history.
- Social Interaction responses.

Impact for creative minds

- Earlier Identification of ASD cases.
- Better targeting of paper-based interventions.
- More efficient resource allocation.
- Data-Driven approach for donor communications.

Implementation Roadmap

- ** Next Steps**
- Pilot Integration with current screening process.
- Train staff on model interpretation.
- Develop target intervention plans based on model outputs.
- Ongoing model refinement with new data.

Thankyou

- **Questions?**
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- Foundation Position- Project Lead