Neurodevelopmental Screening Report

Autism Spectrum Disorder (ASD) - Oculomotor Behavioral Assessment

Patient Information

Patient Name:	deekshith
Date of Birth / Age:	31 months
Gender:	N/A
Assessment Date:	October 15, 2025
Assessment Time:	12:29 AM
Screening Protocol:	Oculomotor Pattern Analysis
Assessment Duration:	60 seconds

Clinical Assessment Results

Positive Screen for ASD Indicators

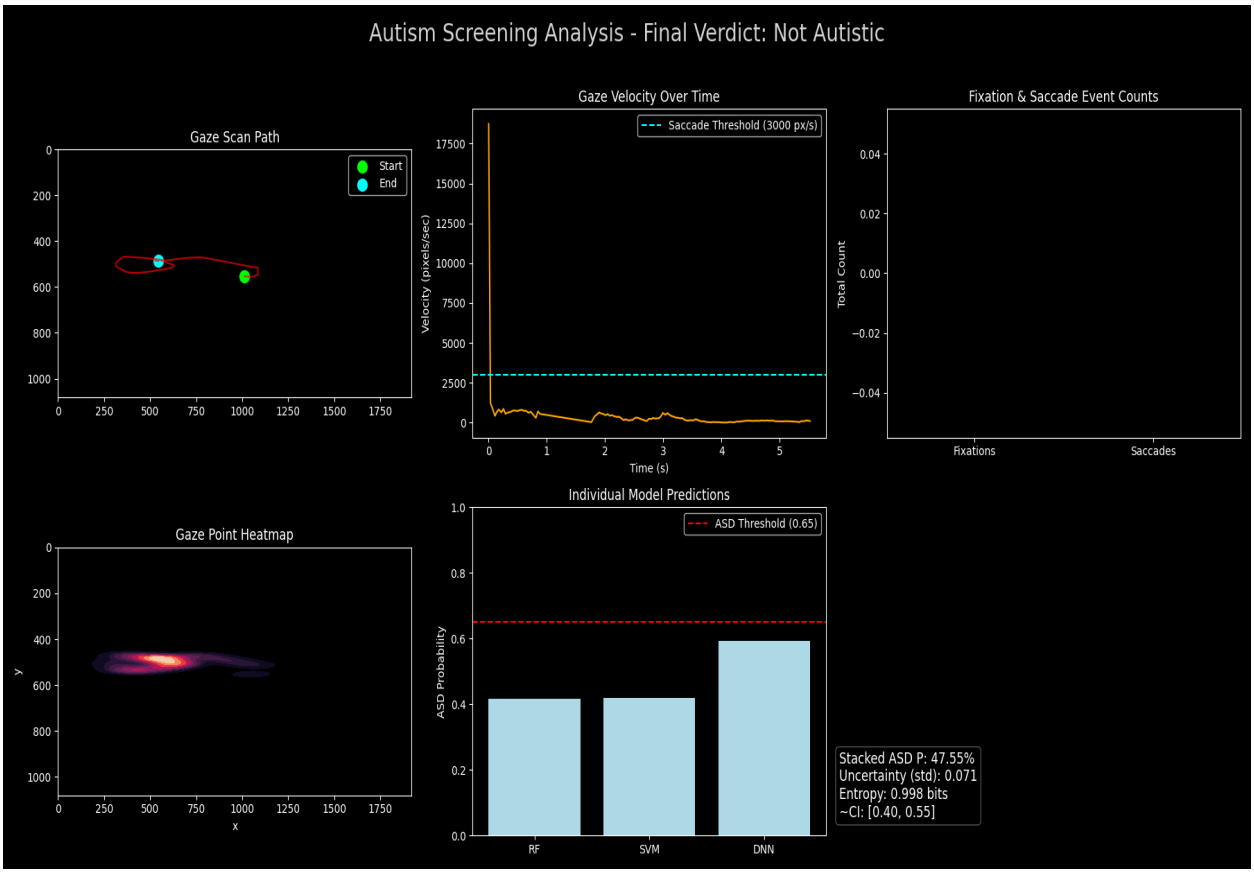
Clinical Metric	Value	Interpretation
Diagnostic Probability	47.55%	Elevated Risk
Model Uncertainty (σ)	7.09%	Inter-model variance
Assessment Quality	High	Sufficient data points collected

Multi-Model Ensemble Analysis

Multi-algorithm ensemble analysis of oculomotor biomarkers including gaze fixation patterns, saccadic velocity, visual attention allocation, and joint attention indicators.

Algorithm	ASD Probability	Clinical Interpretation
Random Forest Classifier	41.55%	Borderline/Inconclusive
Support Vector Machine	41.97%	Borderline/Inconclusive
Deep Neural Network	59.13%	Borderline/Inconclusive

Oculomotor Assessment Visualization



Clinical Observations

Oculomotor Assessment Findings:
- **Gaze Fixation Patterns:** Fixation duration, frequency, and spatial distribution analyzed
- **Saccadic Eye Movements:** Velocity, amplitude, and latency metrics quantified

• **Visual Attention Allocation:** Social vs. non-social stimuli preference evaluated
• **Gaze Stability Metrics:** Smooth pursuit and fixation stability assessed
• **Joint Attention Indicators:** Gaze-following and shared attention patterns measured

Clinical Methodology:
This assessment employs quantitative analysis of oculomotor biomarkers associated with neurodevelopmental conditions. The protocol measures atypical gaze patterns characteristic of autism spectrum disorders, including reduced social attention, atypical fixation duration, irregular saccadic patterns, and diminished joint attention behaviors. Results are derived from ensemble machine learning models trained on validated clinical datasets.

Clinical Interpretation & Recommendations

Clinical Interpretation:
The neurodevelopmental screening indicates **positive markers** for Autism Spectrum Disorder (ASD) with a diagnostic probability of 47.55%. The oculomotor assessment revealed atypical gaze patterns consistent with ASD phenotypes, including reduced social attention allocation and irregular fixation-saccade dynamics.

Differential Diagnosis Considerations:
• Autism Spectrum Disorder (DSM-5: 299.00)
• Rule out: ADHD, Social Communication Disorder, Anxiety Disorders
• Consider: Comorbid conditions (intellectual disability, language disorders)

Clinical Recommendations:
• **Immediate:** Schedule comprehensive diagnostic evaluation (ADOS-2, ADI-R)
• **Referral:** Developmental pediatrician or child psychiatrist specializing in ASD
• **Intervention:** Consider Applied Behavior Analysis (ABA) or Early Start Denver Model (ESDM)
• **Monitoring:** Document behavioral observations using standardized tools (M-CHAT-R/F)
• **Follow-up:** Re-assessment in 3-6 months to track developmental trajectory
• **Support Services:** Explore speech-language therapy and occupational therapy evaluation

Clinical Disclaimer & Limitations:
This automated screening assessment is designed as a **preliminary screening tool** and should **NOT** be used as a definitive diagnostic instrument. Per DSM-5 diagnostic criteria, a comprehensive clinical evaluation by qualified healthcare professionals (developmental pediatrician, child psychologist, or child psychiatrist) is necessary for an accurate ASD diagnosis. This report represents a screening-level assessment and must be interpreted within the context of clinical history, behavioral observations, and standardized diagnostic instruments (ADOS-2, ADI-R). The sensitivity and specificity of this screening tool have not been validated against gold-standard diagnostic protocols. This report is intended for professional medical review only and should not be used for self-diagnosis or treatment decisions.

Report Generated: October 15, 2025 at 12:29 AM
Assessment Type: Automated Neurodevelopmental Screening - Oculomotor Analysis
Analytical Methods: Ensemble Machine Learning (Random Forest, SVM, Deep Neural Network)
Clinical Status: Screening-level assessment - Not a diagnostic instrument
Regulatory Notice: Not FDA-approved - For research and preliminary screening purposes only