

ABSTRAK

PENGEMBANGAN SISTEM PENDETEKSI DAN PENGINTERVENSI TANTRUM PADA ANAK AUTIS BERBASIS *ARTIFICIAL INTELLIGENCE* (AI)

(2025: xv + 117 Halaman + 43 Gambar + 22 Tabel + Daftar Pustaka + Lampiran)

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Tantrum pada anak autis dapat mengganggu proses pembelajaran dan interaksi sosial jika tidak ditangani secara tepat. Penelitian ini mengembangkan sistem deteksi dan intervensi *Tantrum* berbasis *Artificial Intelligence* (AI) menggunakan MediaPipe. Sistem ini mampu mengenali gerakan ekstrem tangan dan kaki secara *real-Time* melalui pemrosesan *pose* tubuh. Saat terdeteksi, sistem memutar lagu sebagai intervensi penenang. Pengujian dilakukan dalam berbagai kondisi pencahayaan, posisi tubuh, jarak, sudut kamera, dan langsung pada anak autis. Hasil menunjukkan sistem memiliki tingkat akurasi tinggi, terutama dalam kondisi pencahayaan optimal, serta mampu membedakan gerakan *Tantrum* dan normal tanpa kesalahan deteksi. Sistem juga berhasil mendeteksi lebih dari satu individu dalam satu *frame*. Pengujian ulang menunjukkan bahwa sistem telah mampu membaca *landmark* tubuh yang hanya terlihat sebagian di kamera. Intervensi lagu memberikan respon positif berupa perhatian dan ketenangan pada anak. Sistem ini diharapkan menjadi alat bantu efektif bagi orang tua dan terapis dalam merespons *Tantrum* secara cepat dan otomatis.

Kata kunci: *Autisme, Tantrum, Artificial Intelligence, MediaPipe, Deteksi Gerakan, Intervensi Lagu*

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Tantrums in autistic children can interfere with the learning process and social interaction if not handled appropriately. This research develops an Artificial Intelligence (AI)-based tantrum detection and intervention system using MediaPipe. The system is able to recognize extreme movements of hands and feet in real-Time through body pose processing. When detected, the system plays a song as a calming intervention. Tests were conducted under various lighting conditions, body positions, distances, camera angles, and directly on an autistic child. Results show that the system has a high accuracy rate, especially in optimal lighting conditions, and is able to distinguish between tantrum and normal movements without detection errors. The system also successfully detected more than one individual in a single frame. Retesting showed that the system was able to read body landmarks that were only partially visible in the camera. The song intervention gave a positive response in the form of attention and calmness to the child. The system is expected to be an effective tool for parents and therapists in responding to tantrums quickly and automatically.

Keywords: *Autism, Tantrum, Artificial Intelligence, MediaPipe, Movement Detection, Song Intervention*