

Real-Time Seizure Prediction

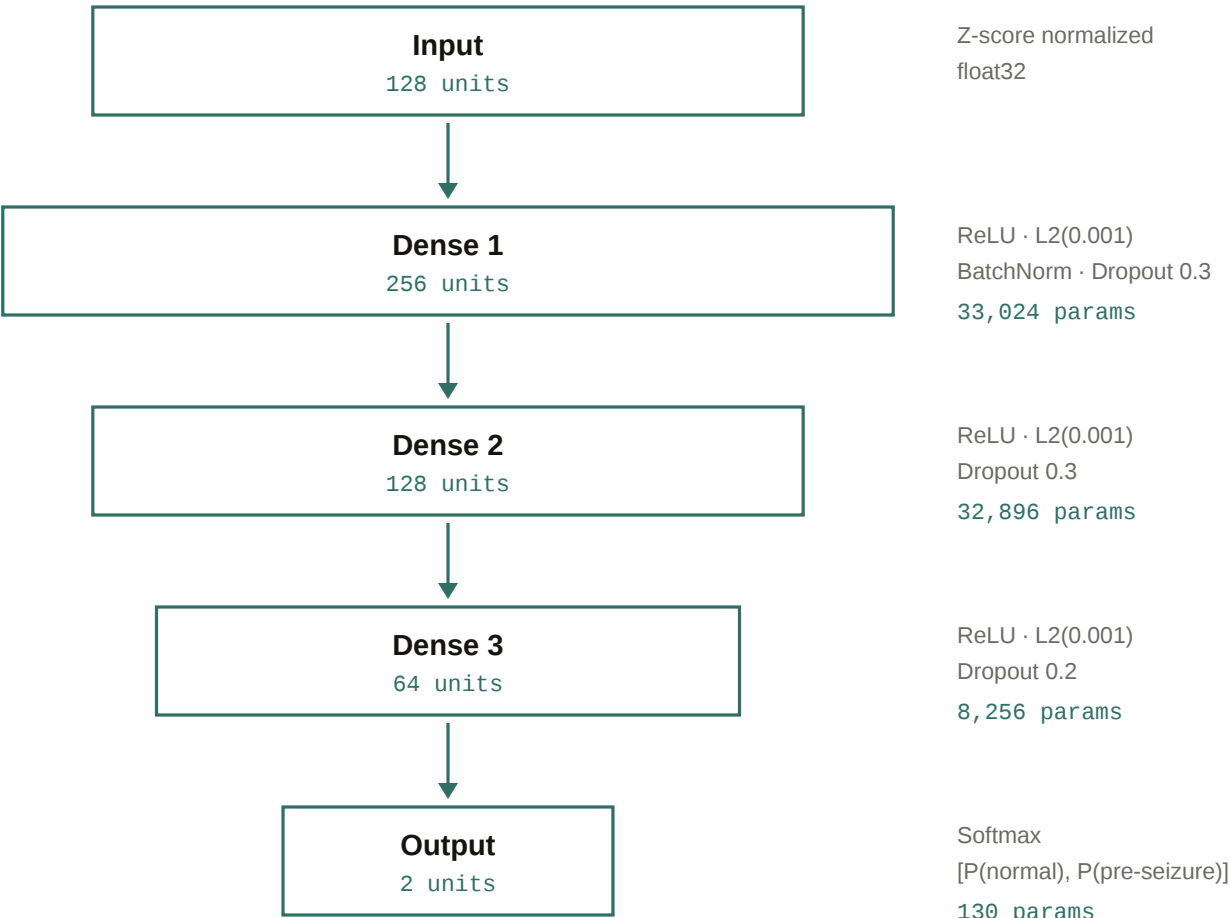
System & Model Architecture Reference

Edge deep-learning pipeline for pre-ictal EEG classification — optimized for ESP32-C3 deployment

01 — END-TO-END PIPELINE



02 — NEURAL NETWORK ARCHITECTURE



TOTAL PARAMS	MODEL SIZE (INT8)	INFERENCE MEM	INFERENCE TIME
74,818	~300 KB	~60 KB	35–50 ms

03 — VALIDATION METRICS (TEST SET, N=2,617)

92.3%	87.8%	6.2 min	<50 ms	0.943
SENSITIVITY	SPECIFICITY	AVG. LEAD TIME	INFERENCE LATENCY	AUC-ROC

Fig. 1 — Aurevia deep-learning pipeline: 4-channel EEG acquisition, 128-feature extraction, and a quantized dense neural network (74,818 parameters) achieving 92.3% sensitivity with a 6.2-minute average seizure prediction lead time on ESP32-C3 edge hardware.

REF: AUR-ARCH-01
Cortex Lab — Aurevia