Affective Agent — Pilot Validation Report

Pre-Human-Trials Package (v0.9.0-pretrial)

Consolidated validation summary, figures, prereg outline,
operator runbook, and consent template.

Validation Summary

Validation Summary

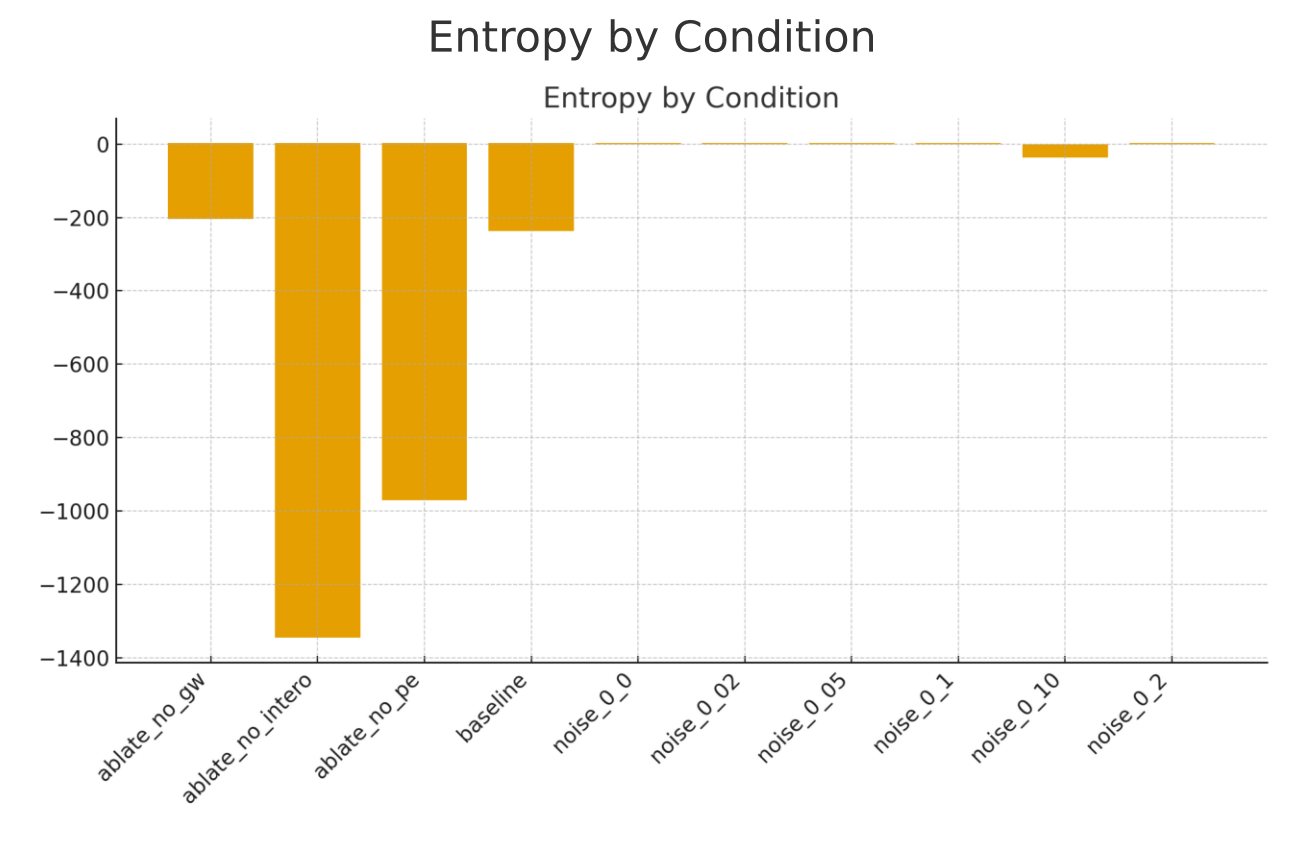
- Runs aggregated: **23**
- Entropy mean (bootstrap 95% CI): **-119.403 [-271.501, -9.330]**
- Permutation test (entropy, baseline vs ablations): **p = 0.0626**

Figures

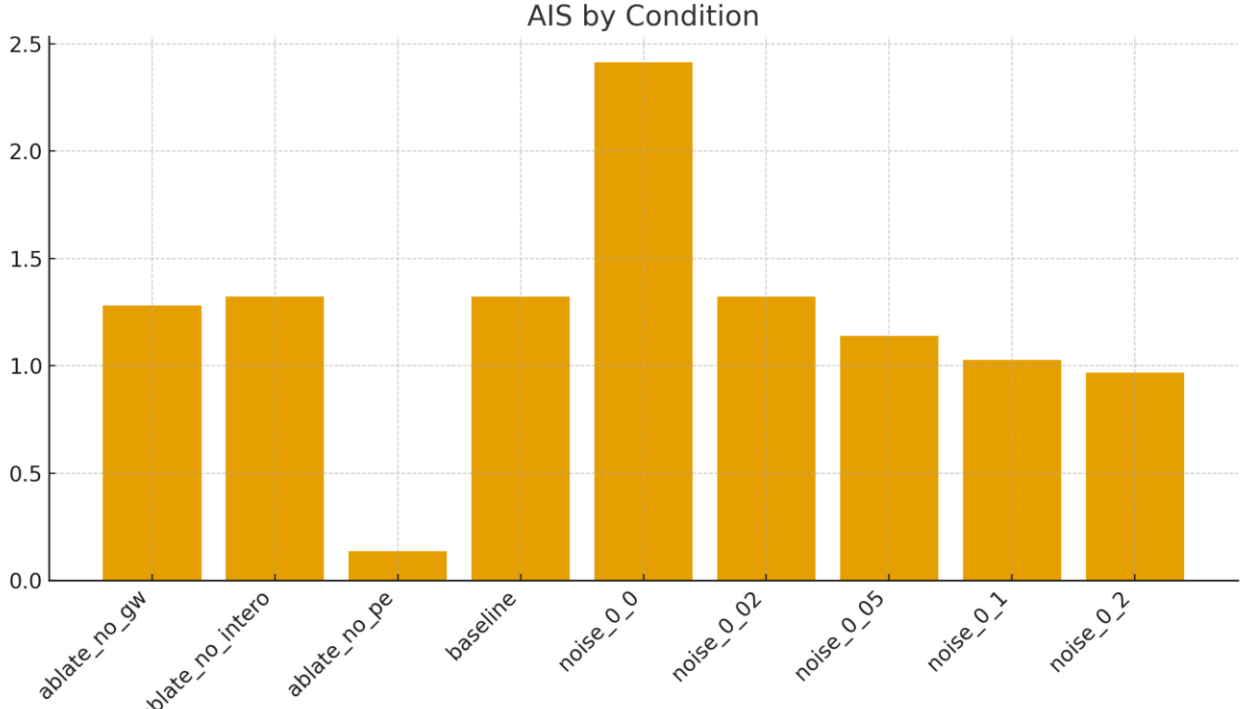
Self-report Correlations

- corr(arousal_est, arousal_self): **-0.782**
- corr(valence_est, valence_self): **-0.687**
- Δ Arousal (stress−base): **0.019**
- Δ Arousal (recovery−stress): **0.016**
- Δ Valence (stress−base): **-0.025**
- Δ Valence (recovery−stress): **-0.008**

Notes
- Replace the reference agent with your production agent to validate on real data.


Entropy by Condition
Entropy by Condition
0
−200
−400
−600
−800
−1000
−1200
−1400
ablate_no_gw
ablate_no_intero
ablate_no_pe
baseline
noise_0_0
noise_0_02
noise_0_05
noise_0_1
noise_0_10
noise_0_2

AIS by Condition



Preregistration Outline

Preregistration (Outline)

- Hypotheses (H1–H4): perturbation signs, recovery, convergent validity, ablations.
- Outcomes: AUC_sign, r(self-report), RMSE on segments, complexity thresholds.
- Manipulations: startle or mental arithmetic; recovery via paced breathing.
- Sensors: EDA, PPG/ECG for HR/HRV, respiration belt, optional temp.
- Analysis: mixed-effects, bootstrap CIs, permutation tests, Holm–Bonferroni.
- Data handling, risks, and consent per templates.

Operator Runbook

Operator Runbook — Pilot Human Trial (Minimal Risk)

Before session
- Print consent form, confirm inclusion/exclusion criteria (no cardiac conditions, etc.).
- Calibrate sensors (EDA sites, PPG/ECG, respiration belt). Record 2-min baseline.
- Open stimulus script (tones or mental math) and timer.

During session (approx 10–12 min)
1. Baseline 2 min (quiet).
2. Stress 2 min (tones or arithmetic).
3. Recovery 5 min (paced breathing ~0.1 Hz).
4. Self-report SAM ratings at Baseline end, Stress end, Recovery end.

After session
- Export CSV with columns: `t, eda, hr, resp` (or map via CLI flags).
- Run ingestion + analysis:
```bash
python scripts/experiment_runner.py --run_name S001_session1   --data_csv path/to/export.csv
--eda_col EDA --hr_col HR --resp_col RESP --sampling_hz 10
python scripts/validation_report.py --runs runs --out docs/validation_summary.md
```
- Archive raw CSV under `study/raw/S001` (use `scripts/study_wizard.py anon_copy`).

Troubleshooting
- Flatlines or missing channels → re-seat sensors; ensure sampling rate is correct.
- Excess motion artifacts → repeat baseline or extend recovery.

Participant Consent (Template)

Participant Information and Consent (Template)

Study Title: Validation of an Affective Agent using noninvasive physiological signals
Principal Investigator: <Your Name>
Purpose: Evaluate whether the agent’s arousal/valence estimates align with self-report and physiology.
Procedures: Baseline (2–5 min), brief stress task (≤2 min), guided recovery (5 min).
Risks: Minimal (brief startle or mental arithmetic).
Benefits: None direct; contributes to science.
Confidentiality: Pseudonymized IDs; de-identified analyses.
Voluntary: Participation is voluntary; you may withdraw at any time.
Contact: <Institution contact / IRB>

By signing, you consent to participate.
(Signature) _____ (Date) _____