# Figure 2: ENARM-MPNet-v5 Fine-tuning Pipeline



**1** — **Raw Data** — 14,917 flashcards — *Collection*

**2** — **Cleaning** — Deduplication / Normalization — *Preprocessing*

**3** — **Pairs** — 12,467 train / Q → Q+A — *Dataset*

**4** — **Training** — MNRL Loss / 2 epochs — *Contrastive*

**5** — **ENARM-v5** — 99.5% R@1 / 13 min — *Deployment*