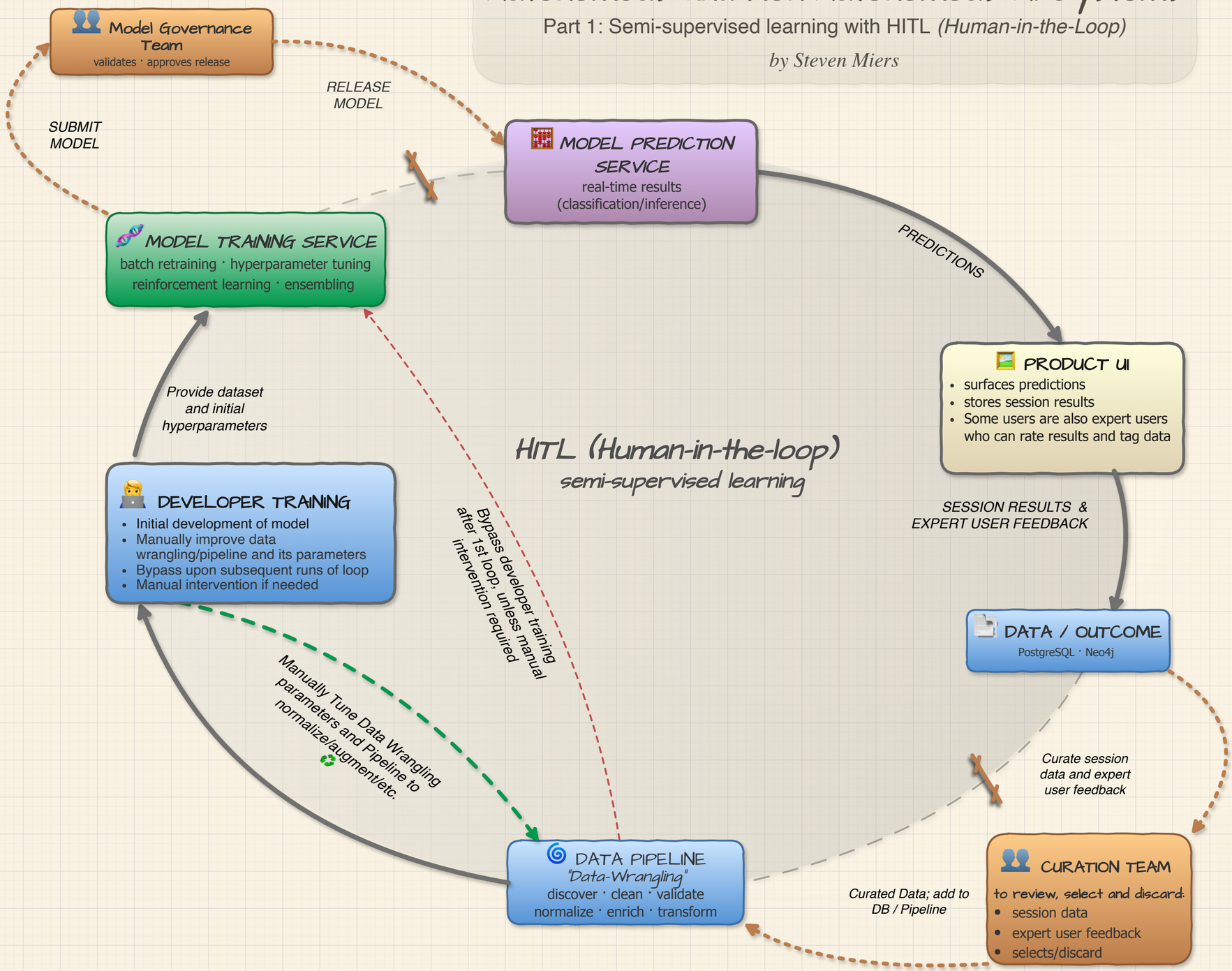
Autonomous and Non-Autonomous AI Systems

Part 1: Semi-supervised learning with HITL *(Human-in-the-Loop)*

by Steven Miers



Legend

- Governance Routing
- Governance Boundary
- "Main" Loop with Human in it
- Requires Governance to proceed
- Internal Loop
- Potential Bypass

GOVERNANCE
Human review steps to sanity-check and accept or reject inputs and models. These also represent "boundaries" that make this a "loop", but not closed-loop.

MODEL PREDICTION SERVICE
- Has access to approved models
- real-time results (classification/inference)

PRODUCT UI
Automated predictions combined with human feedback
- surfaces predictions
- stores session results
- Some users are "experts" who rate results and tag data

DATA
Slower portion of learning cycle involving curated data, training, and controlled model updates

MODEL TRAINING SERVICE
- batch retraining
- model tuning/ensembling
- RL (reinforcement learning)

Many production AI systems are loop-shaped, but not closed-loop. *Human* feedback, curation, and governance introduce delay, filtering, and control boundaries that prevent *true* autonomy.