II.1 Global AI Patent Examination

- US • EPO • UK • Canada • Japan
- jurisdiction-specific examples.

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Nov. 27, 2025

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Summary Table of AI Patent Examination Examples by Jurisdiction

Jurisdiction	Number of Examples	Eligible	Ineligible	Partially	Date Published
Japan (JPO)	25	13	7	5	2024-03-13
UK (UKIPO)	18	12	6	0	2025-01-30
EPO	15	11	4	0	2024-04-01
Canada (CIPO)	14	9	5	0	2025-08-05
US (USPTO)	8	3	5	0	2024-07-01
TOTAL	80	48	27	5	
PERCENTAGE	*100%*	*60%*	*34%*	*6%*	

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What All 5 Offices Agree On

- • AI must provide a technical contribution
- • Abstract math/business logic excluded
- • Human inventorship only
- • Technical effect must be reproducible

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Global Eligibility Snapshot

- EPO 73% • UK 67% • Canada 64% • Japan 52% • US 38%
- Interpretation: Strictest = EPO; Most flexible = US

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JPO – Eligibility (with Examples)

- Eligibility requires technical idea using natural laws.
- • Must show or imply input→output correlation tied to real-world effects.
- Examples:
- ✓ Case 3-2: Apple sugar estimation using sensors (eligible)
- ✗ Trained model parameters without implementation (not eligible)

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JPO – Inventive Step & Disclosure (Examples)

- • Case 36: Novel data preprocessing improves dementia detection → inventive
- • Case 33: Routine NN application → obvious
- • Case 51: AI-predicted adhesive strength without validation → insufficient disclosure

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UK – Aerotel Test (with Examples)

The Aerotel 4-Step Test:

- 1. Properly construe the claim – interpret claim language.
- 2. Identify the actual contribution – what does the invention add?
- 3. Does the contribution fall solely within excluded subject matter?
- • mathematical methods, business methods, mental acts.
- 4. Check whether the contribution is technical in nature – must have technical effect.

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UK – AT&T Signposts + Emotional Perception

- AT&T Signposts and Emotional Perception:

- AT&T Signposts (Technical Contribution Indicators):
- 1. Improves internal computer functioning.
- 2. Improves system performance.
- 3. Controls an external technical process.
- 4. Produces technical effect independent of data content.
- 5. Solves technical problem in a technical field.

- Emotional Perception – Key Components:
- • Neural network similarity scoring is not a mathematical method.
- • Output influences real-world device/system behavior → technical effect.
- • AI recommendation systems may be technical when grounded in signal/data processing.
- • Court rejected argument that NN is 'just math'—implementation matters.

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EPO – Technical Character (Examples)

COMVIK Inventive Step Approach (T 641/00):

- • Step 1: Identify technical vs. non-technical features.
- • Step 2: Formulate the objective technical problem based on technical differences.
- • Step 3: Assess inventive step using only technical features.

- Principle: Non-technical features (math, business rules, semantic content) do not contribute to inventive step unless interacting with technical means.

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EPO – COMVIK Rule (Examples)

- Only technical features count toward inventive step.
- Examples:
- ✓ Using ML to optimise a control loop → counts
- ✗ Using ML to classify customer preferences → ignored

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EPO – Disclosure (Art. 83) Examples

- Disclosure must enable reproducibility.
- Examples:
- ✗ T0161/18: ANN lacked training data → insufficient
- ✓ Detailed training datasets & preprocessing yield acceptance

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Canada – Essential Elements (Examples)

- Purposive Construction – Components:
- 1. Identify essential vs. non-essential claim elements.
- 2. Consider the problem the invention seeks to solve.
- 3. Determine whether the computer is essential to the solution.
- 4. Only essential technical elements support patent eligibility.

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- Examples:
- ✓ GPU-based medical imaging → essential computer elements.
- ✗ Finance ML on generic computer → non-essential, non-statutory.

Canada – AI Inventive Step (Examples)

- Unexpected technical improvements required.
- Examples:
- ✓ New ML architecture improves ECG noise filtering → inventive
- ✗ Using standard NN for tax predictions → obvious

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US – Eligibility (101) (Examples)

- Two-Step Alice/Mayo §101 Eligibility Test:

- Step 1 – Is the claim directed to a judicial exception?
- • Abstract ideas (mathematics, mental steps, algorithms)
- • Laws of nature
- • Natural phenomena

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- Step 2 – If yes, does the claim include "significantly more"?
- • Practical application improving a technical field
- • Improved computer functionality, security, or hardware operation
- • Integration into a specific technical process
- • Claim limitations that meaningfully restrict the abstract idea

- Non-examples:
- ✗ Generic computer implementation
- ✗ Stating 'apply the model' without technical details

US – Practical Application & §112 Examples

- AI must improve a technical field and be fully enabled.
- Examples:
- ✓ AI improving packet routing efficiency → patentable
- ✗ Model described only as 'trained model' with no detail → fails §112

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Cross-Jurisdiction Alignment

- Fully aligned:
- • Technical effect required
- • Abstract ideas excluded
- • Human inventorship only

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HIGH level overview

Concept	US	EPO	UK	Canada	Japan
Eligibility	Alice/Mayo	Technical Character	Aerotel	Essential Elements	Technical Idea
Examples (Eligible)	Security, routing	Signal processing	Machinery AI	Medical imaging	Sensors (3-2)
Examples (Not Eligible)	Math models	Semantic NLP	Email class.	Finance ML	Model params
Inventive Step	Practical app	COMVIK	AT&T	Unexpected effect	Novel preprocessing
Disclosure	112 enablement	Strict 83	Enable effect	Reproduce	Correlation needed

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Largely Consistent Concepts (Examples)

- • Novel preprocessing improves inventive step (JPO Case 36, EPO cases)
- • Insufficient training data → rejection (EPO T0161/18, JPO Case 51)
- • Software-only acceptable if technical (US, UK)

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Key Differences (Examples)

- • EPO strict: semantic NLP always non-technical
- • US flexible: software security enhancements patentable
- • UK Emotional Perception expands AI recommendations
- • Canada essential-elements test rejects non-technical computer use

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Globally Patentable AI (Examples)

- ✓ Robotics control with ML
- ✓ ECG/EEG signal denoising
- ✓ Network intrusion detection
- ✓ Image reconstruction for MRI

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Globally Non-Patentable AI (Examples)

- ✗ Customer churn prediction
- ✗ Semantic document clustering
- ✗ ML for pricing, insurance, marketing



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Inventive Step Comparison

- US: Practical application
- EPO: COMVIK
- UK: AT&T
- Canada: Purposive
- Japan: Novel data/processing

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Global Patentability Checklist

- 1. Technical field
- 2. Technical effect
- 3. Technical features
- 4. Reproducible disclosure
- 5. Human inventorship

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How AI Patentability Guidelines Assist SR&ED Claimants

Patent tests align closely with SR&ED definitions of technological advancement.

- • Patent rules force teams to articulate:
- – The specific technical problem being solved.
- – Why existing methods were insufficient.
- – What novel technical approach was attempted.
- • This directly maps to SR&ED requirements:
- – Scientific uncertainty
- – Systematic investigation
- – Technological advancement
- • AI patent eligibility examples help identify whether an AI project truly advances system performance, signal processing, or computational architecture.

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Using AI Patent Criteria to Strengthen SR&ED Documentation

- • Patent frameworks highlight indicators of advancement:
- – Novel preprocessing or data engineering.
- – Improvements in accuracy tied to system-level effects.
- – Reductions in latency, errors, resource use, or noise.
- • Patent disclosure rules mirror SR&ED evidence requirements:
- – Experiments, failed attempts, and iterative tuning.
- – Dataset selection and transformation rationale.
- – Performance benchmarks and unexpected results.
- • AI examples show how to articulate advancements in control systems, signal analysis, and computational methods.

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Areas to look for SR&ED work - Top 10 Neural Network Types (2025)

- ANN – Artificial Neural Network (base of everything)
- CNN – Convolutional NN (images/video)
- RNN – Recurrent NN (classic sequences)
- LSTM – Long Short-Term Memory (long sequences)
- GRU – Gated Recurrent Unit (faster LSTM)
- Transformer – Self-attention architecture (dominates everything now)
- MLP – Multilayer Perceptron (fully-connected baseline)
- GAN – Generative Adversarial Network (image/audio generation)
- DNN – Deep Neural Network (any very deep model)
- GNN – Graph Neural Network (molecules, social nets, recsys)

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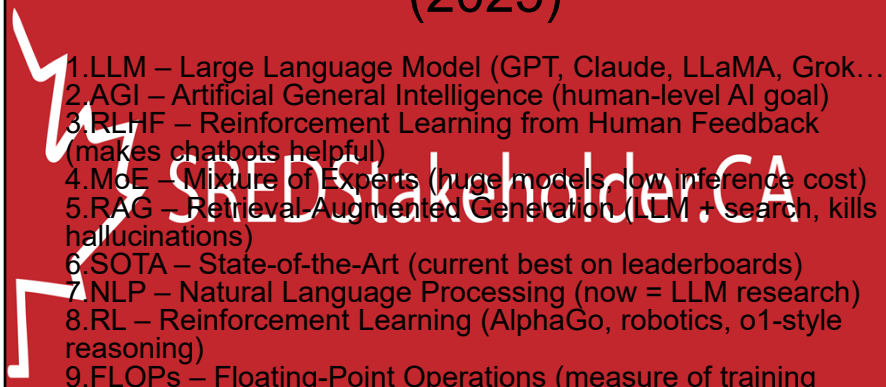
Areas to look for SR&ED work - Top 10 AI Research Acronyms (2025)



1. LLM – Large Language Model (GPT, Claude, LLaMA, Grok…)
2. AGI – Artificial General Intelligence (human-level AI goal)
3. RLHF – Reinforcement Learning from Human Feedback (makes chatbots helpful)
4. MoE – Mixture of Experts (huge models, low inference cost)
5. RAG – Retrieval-Augmented Generation (LLM + search, kills hallucinations)
6. SOTA – State-of-the-Art (current best on leaderboards)
7. NLP – Natural Language Processing (now = LLM research)
8. RL – Reinforcement Learning (AlphaGo, robotics, o1-style reasoning)
9. FLOPs – Floating-Point Operations (measure of training compute)
10. ASI – Artificial Superintelligence (smarter-than-human AI)

"Know these 20 acronyms → understand 99 % of 2025 AI papers & news"

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Thank You

- Questions and discussion welcome



List of International patents cited

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