

Cross-Domain Prior Art Discovery Strengthened with In-Domain Evidence

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OBJECTIVE

To identify strong novelty-breaking prior art for a patent related to a **data processing and feature extraction system**, where conventional searches within the same application domain had failed to yield decisive results. The engagement required moving beyond standard classification-based retrieval and reconstructing the invention at its fundamental algorithmic level to expose prior disclosures in completely unrelated industries.

CHALLENGE

- ▶ The claimed invention was positioned within a specific application domain — image analytics and structured data extraction — where the prior art landscape appeared thin.
- ▶ Initial keyword and classification-based searches within the same domain produced only incremental or non-novelty-breaking references, insufficient to mount a strong invalidity position.
- ▶ The inventive concept was abstracted and embedded in domain-specific terminology, making it resistant to direct prior art identification through conventional methods.
- ▶ Cross-domain mapping was required: the same algorithmic workflow had been disclosed in unrelated fields but was obscured by field-specific language and classification codes.

APPROACH — FUNCTIONAL DECOMPOSITION & CROSS-DOMAIN SEARCH METHODOLOGY

1 Functional Claim Decomposition

Deconstructed the claims into core functional elements, stripping away domain-specific language to expose the underlying algorithmic operations — input transformation, intermediate feature derivation, and output classification — in domain-neutral terms.

2 Broad Technical Concept Mapping

Mapped the claim elements to broader technical concepts spanning pattern recognition, signal processing, and feature vector generation — enabling cross-domain search strings not anchored to the original application field.

3 Cross-Domain Prior Art Search

Executed targeted searches in unrelated industries — telecommunications, bioinformatics, and control systems — using domain-neutral terminology and abstract IPC codes. Retrieved references that would have been entirely invisible to within-domain searches.

4 In-Domain Corroboration

Supplemented the primary cross-domain reference with multiple in-domain references to establish motivation to combine, demonstrate known equivalences, and build a robust dual-argument invalidity position covering both novelty and obviousness.

⚡ KEY INSIGHT

The novelty did not lie in the application domain. By abstracting the claims to their functional core, we identified that the **same underlying algorithmic workflow had already been disclosed years earlier** — in a completely different technical field. The domain-specific framing in the patent's claims had concealed this equivalence from conventional searches. Once the functional mapping was complete, an **early-stage reference from bioinformatics / telecommunications / control systems** was identified that disclosed the **identical methodology, sequence of operations, and output structure** as the claimed invention — reading directly onto each element of the independent claims.

RESULTS

◆ Primary Prior Art

Identified a primary reference from an unrelated domain that read directly onto all elements of the independent claims — establishing anticipation without any need for combination.

◆ Obviousness Position

Cited multiple in-domain secondary references to demonstrate motivation to combine, establish known equivalences between fields, and support an obviousness argument under standard legal frameworks.

◆ Dual Invalidity Argument

Delivered a combined invalidity strategy covering both novelty (§102) via the cross-domain primary reference and obviousness (§103) via in-domain secondary references — a far stronger position than either alone.

IMPACT ON CLIENT

- ✓ Equipped the client with a robust, multi-reference invalidity package suitable for pre-litigation settlement discussions and inter partes review proceedings.
- ✓ Reduced dependency on weak in-domain art that lacked direct correspondence to the claims, replacing it with a cross-domain primary reference that read element-by-element onto the independent claims.
- ✓ Significantly improved confidence in the challenge strategy by demonstrating that the core inventive concept had been in the public domain for years in another technical field.
- ✓ Demonstrated the operational value of domain-neutral claim analysis — a methodology that should be standard practice when in-domain searches fail to yield decisive prior art.

KEY TAKEAWAYS

- ▶ Functional claim decomposition — stripping domain-specific language to reveal the underlying algorithmic operations — is the essential first step when in-domain searches yield only incremental results.
- ▶ The strongest prior art often exists in completely unrelated fields; restricting searches to the application domain of a patent systematically misses cross-domain disclosures of the same methodology.
- ▶ A primary reference establishing anticipation combined with secondary in-domain references establishing motivation to combine produces a far more defensible invalidity position than either argument in isolation.
- ▶ Domain-neutral technical concepts — pattern recognition, feature vector generation, signal processing — serve as bridge terms that unlock cross-domain prior art otherwise invisible to field-specific search strategies.

VALUE DELIVERED

By abstracting the claimed invention to its functional core and executing cross-domain searches in telecommunications, bioinformatics, and control systems, IIPRD uncovered a primary prior art reference that directly anticipated the independent claims — something conventional in-domain searches had entirely missed. Supplemented with in-domain secondary references establishing motivation to combine, the client received a complete dual-argument invalidity package covering both anticipation and obviousness. This positioned the client strongly for pre-litigation settlement discussions and materially reduced the cost and risk of formal IPR proceedings.