

Artificial Intelligence Foundations for Mediation

Algorithmic Bias – Related terms: fairness, discrimination. A systematic error in AI outputs that disadvantages certain groups. Example: A dispute-resolution chatbot that favors parties with higher socioeconomic status due to training data skew. Practical application includes auditing mediation algorithms for bias. Challenges involve detecting subtle biases and correcting them without over-fitting.

Artificial Intelligence – Related terms: machine learning, reasoning. The science of creating systems that perform tasks requiring human intelligence. In mediation, AI can analyze case law, predict outcomes, and suggest settlement options. Challenges include ensuring transparency and maintaining human oversight.

Artificial Neural Network – Related terms: deep learning, perceptron. A computational model inspired by brain neurons, organized in layers. Used to process natural-language inputs from disputants. Example: A neural network that classifies statements as conciliatory or confrontational. Challenges include interpretability and data requirements.

Attention Mechanism – Related terms: transformer, context. A technique that weights the importance of different input parts when generating responses. In mediation chatbots, it helps focus on key issues raised by parties. Challenges involve computational cost and potential over-reliance on salient cues.

Automated Mediation Platform – Related terms: e-mediation, digital dispute system. An online service that uses AI to guide parties through mediation steps without human mediators. Example: A platform that schedules sessions, suggests language, and drafts agreements. Challenges include user trust, data security, and handling complex emotions.

Binary Classification – Related terms: logistic regression, decision boundary. A machine-learning task that assigns inputs to one of two categories. In mediation, it might classify messages as “acceptable” or “unacceptable.” Practical use includes flagging abusive language. Challenges include imbalanced datasets and false positives.

Case-Based Reasoning – Related terms: analogical reasoning, precedent. An AI approach that solves new problems by adapting solutions from similar past cases. Mediation systems can retrieve prior settlement patterns to suggest options. Challenges include maintaining a relevant case library and ensuring privacy.

Chatbot – Related terms: conversational agent, dialogue system. An AI program designed to converse with users via text or speech. In mediation, chatbots can collect information, clarify issues, and propose compromises. Challenges involve natural-language understanding, empathy simulation, and handling escalation.

Clustering – Related terms: k-means, hierarchical clustering. Unsupervised learning that groups similar data points. Mediation platforms can cluster disputes by type (e.g., Contract, family) to apply tailored workflows. Challenges include choosing appropriate distance metrics and interpreting clusters.

Conflict Resolution Theory – Related terms: interest-based negotiation, principled negotiation. A body of knowledge describing how parties resolve disagreements. AI models incorporate these principles to suggest mutually beneficial solutions. Challenges include translating abstract theory into algorithmic rules.

Contextual Embedding – Related terms: word vectors, BERT. Representation of words that captures surrounding context. Enables mediation AI to understand nuanced statements like “I feel unheard.” Practical use includes sentiment analysis. Challenges involve large model sizes and domain adaptation.

Conversational AI – Related terms: dialogue management, natural language generation. Systems that can hold multi-turn conversations with users. In mediation, they can guide parties through issue identification, option generation, and agreement drafting. Challenges include maintaining coherence over long sessions.

Contractual Dispute – Related terms: breach, remedy. A disagreement arising from alleged violation of contract terms. AI can predict likely outcomes based on jurisdictional data. Example: Estimating damages in a service contract dispute. Challenges include legal nuance and jurisdictional variance.

Data Privacy – Related terms: GDPR, confidentiality. Protection of personal information collected during mediation. AI systems must anonymize data while preserving utility. Practical measures include encryption and differential privacy. Challenges involve balancing privacy with model performance.

Decision Tree – Related terms: random forest, CART. A flowchart-like model that splits data based on feature thresholds. Useful for explaining AI recommendations to parties. Example: A tree that determines whether a settlement offer is fair. Challenges include over-fitting and handling continuous variables.

Deep Learning – Related terms: neural network, backpropagation. A subset of machine learning using many layered networks to model complex patterns. Enables sophisticated language understanding in mediation tools. Challenges include high computational demand and opacity.

Dispute Resolution Clause – Related terms: arbitration, mediation. A contractual provision that mandates a specific method for handling disputes. AI can scan contracts to locate such clauses automatically. Challenges involve diverse drafting styles and jurisdictional differences.

Domain Adaptation – Related terms: transfer learning, fine-tuning. Adjusting a pre-trained AI model to a new, specific area (e.g., Family mediation). Practical steps include re-training on domain-specific transcripts. Challenges include limited labeled data and catastrophic forgetting.

Emotion Detection – Related terms: sentiment analysis, affective computing. Identifying emotional states from text or voice. In mediation, recognizing anger or anxiety can trigger calming interventions. Example: Flagging a message with high hostility. Challenges include cultural variation and sarcasm detection.

Ethical AI – Related terms: responsible AI, AI governance. Principles guiding the development of fair, transparent, and accountable systems. In mediation, ethical AI ensures impartiality and respects autonomy. Challenges include operationalizing abstract principles and monitoring compliance.

Explainable AI (XAI) – Related terms: interpretability, model transparency. Techniques that make AI decisions understandable to humans. Mediators can present reasons why a settlement suggestion was generated.

Example: Feature importance plots. Challenges involve trade-offs with accuracy.

Feedback Loop – Related terms: reinforcement learning, continuous improvement. Process where system outputs are evaluated and used to refine the model. In mediation platforms, post-session surveys inform future recommendations. Challenges include bias reinforcement and data drift.

Fuzzy Logic – Related terms: membership function, linguistic variable. A reasoning method that handles imprecise concepts (e.g., “Moderately dissatisfied”). Useful for modeling subjective satisfaction levels. Example: Assigning a fuzzy score to a party’s acceptance. Challenges include rule design and interpretability.

Gender Bias – Related terms: algorithmic bias, equity. Systematic disadvantage of one gender in AI outcomes. In mediation, it may manifest as different settlement offers based on gendered language patterns. Mitigation strategies include balanced training data. Challenges involve detecting subtle bias.

General Data Protection Regulation (GDPR) – Related terms: data subject rights, compliance. EU law governing personal data handling. AI mediation tools serving EU users must provide data access, rectification, and deletion capabilities. Challenges include implementing “right to explanation” within AI pipelines.

Generative Pre-trained Transformer (GPT) – Related terms: large language model, autoregressive. A type of AI that can generate human-like text. Mediation assistants can draft settlement agreements or summarize sessions. Challenges involve hallucination, bias, and controlling output length.

Graph Neural Network (GNN) – Related terms: node embedding, relational learning. Neural networks that operate on graph-structured data. Useful for modeling relationships between parties, issues, and prior cases. Example: Predicting influence of a third-party stakeholder. Challenges include scalability and interpretability.

Heuristic – Related terms: rule-of-thumb, approximation. A practical method for problem solving that may not guarantee optimal results. Mediation AI may use heuristics like “offer a 10% concession first.” Challenges involve ensuring heuristics remain relevant across contexts.

Human-in-the-Loop (HITL) – Related terms: supervision, oversight. Design pattern where humans review or intervene in AI decisions. In mediation, a mediator may approve AI-generated settlement drafts. Challenges include latency and defining responsibility boundaries.

Hybrid Model – Related terms: ensemble, combined approach. Integration of multiple AI techniques (e.g., Rule-based + machine learning). Provides robustness for mediation tasks such as clause extraction and outcome prediction. Challenges include model integration complexity.

Impact Assessment – Related terms: risk analysis, audit. Evaluation of potential consequences of deploying an AI system. For mediation platforms, assessing effects on access to justice and procedural fairness. Challenges include quantifying intangible outcomes.

Information Retrieval – Related terms: search engine, indexing. The process of locating relevant documents from a large corpus. AI can retrieve prior mediation cases matching current dispute characteristics. Example:

Using TF-IDF to rank similar cases. Challenges involve relevance ranking and legal confidentiality.

Intent Classification – Related terms: dialogue act, purpose detection. Determining the underlying goal of a user utterance. In mediation, distinguishing between “expressing grievance” and “seeking compromise.” Practical use includes routing messages to appropriate AI modules. Challenges include ambiguous language.

Interoperability – Related terms: API, standards. Ability of different systems to exchange and use information. Mediation AI must integrate with case-management software, calendars, and e-signatures. Challenges involve data format mismatches and security protocols.

Knowledge Graph – Related terms: ontology, semantic network. Structured representation of entities and their relationships. In mediation, nodes could represent parties, issues, legal doctrines, and outcomes. Practical application: Visualizing dispute structure for mediators. Challenges include keeping the graph up-to-date.

Legal Ontology – Related terms: taxonomy, concept schema. Formal representation of legal concepts and their interrelations. AI uses it to map user inputs to legal categories (e.G., “Non-performance”). Example: An ontology that distinguishes “breach” from “termination.” Challenges involve capturing jurisdictional nuances.

Legal Reasoning – Related terms: deductive reasoning, case law. Process of applying legal rules to facts. AI models emulate this to justify suggestions. Example: A system that cites a precedent when recommending a remedy. Challenges include handling contradictory precedents.

Legitimacy – Related terms: trust, acceptance. Perceived fairness and appropriateness of a dispute-resolution process. AI-augmented mediation must maintain legitimacy to be adopted. Practical steps include transparency reports. Challenges involve overcoming skepticism toward algorithmic decisions.

Machine Learning (ML) – Related terms: supervised learning, model training. Subfield of AI that enables computers to learn patterns from data. In mediation, ML predicts settlement amounts based on historical outcomes. Challenges include data quality and over-fitting.

Model Drift – Related terms: concept drift, performance degradation. Deviation of a model’s predictions over time due to changes in underlying data distribution. In mediation, new types of disputes may cause drift. Mitigation involves periodic retraining. Challenges include detecting drift early.

Natural Language Processing (NLP) – Related terms: tokenization, parsing. Technology for computers to understand and generate human language. Core to AI mediation for interpreting statements, extracting clauses, and drafting agreements. Challenges involve domain-specific jargon and ambiguity.

Neural Machine Translation (NMT) – Related terms: multilingual AI, language model. AI that translates text between languages. Enables cross-border mediation by providing real-time translation of parties’ statements. Challenges include preserving legal nuances and handling low-resource languages.

Negotiation Support System (NSS) – Related terms: decision aid, mediation tool. Software that assists

parties in negotiating by presenting options, trade-offs, and outcome simulations. AI enhances NSS with predictive analytics. Challenges include user adoption and avoiding over-reliance on suggestions.

Non-Disclosure Agreement (NDA) – Related terms: confidentiality, contract clause. Legal contract restricting sharing of information. AI can automatically detect NDA breaches in mediation communications. Challenges involve accurate identification of confidential content.

Ontology Alignment – Related terms: schema mapping, semantic integration. Process of reconciling different ontologies to enable shared understanding. Important when integrating multiple legal knowledge bases. Challenges include handling ambiguous term mappings.

Out-of-Scope Query – Related terms: fallback, escalation. User request that the AI cannot handle within its domain. Mediation systems must route such queries to human mediators. Challenges include timely detection and maintaining user confidence.

Over-fitting – Related terms: generalization error, regularization. When a model learns noise in training data, performing poorly on new cases. In mediation AI, it can lead to inaccurate outcome predictions. Mitigation includes cross-validation. Challenges involve limited labeled dispute data.

Pattern Recognition – Related terms: feature extraction, clustering. Identifying regularities in data. AI can recognize recurring dispute patterns (e.G., "Late delivery" issues). Practical use includes pre-populating mediation templates. Challenges include distinguishing coincidental patterns from causal ones.

Performance Metric – Related terms: accuracy, F1-score. Quantitative measure of model effectiveness. For mediation AI, metrics may include prediction error of settlement amounts or user satisfaction scores. Challenges involve selecting metrics that reflect real-world utility.

Personal Data – Related terms: PII, data subject. Any information relating to an identifiable individual. Mediation platforms must safeguard personal data such as contact details and dispute narratives. Challenges include anonymization while retaining analytical value.

Predictive Analytics – Related terms: forecasting, statistical modeling. Use of data, statistical algorithms, and machine learning to predict future outcomes. AI can forecast likely settlement ranges based on case attributes. Challenges include uncertainty quantification and ethical use of predictions.

Privacy-Preserving Machine Learning – Related terms: federated learning, homomorphic encryption. Techniques that train models without exposing raw data. Mediation firms can collaboratively improve models without sharing confidential case files. Challenges include communication overhead and model accuracy trade-offs.

Prompt Engineering – Related terms: instruction design, prompt tuning. Crafting input statements to elicit desired responses from large language models. In mediation, prompts can guide a model to generate neutral settlement language. Challenges include prompt sensitivity and maintaining consistency.

Proactive Mediation – Related terms: early dispute resolution, preventive arbitration. Initiating mediation before conflict escalates. AI can monitor communication channels for early signs of dispute and suggest

mediation. Practical example: Flagging rising tension in email threads. Challenges involve privacy concerns and false alarms.

Probabilistic Reasoning – Related terms: Bayesian inference, uncertainty modeling. Reasoning under uncertainty using probability distributions. AI can assess likelihood of various dispute outcomes. Example: Bayesian network estimating chance of settlement success. Challenges include specifying accurate priors.

Qualitative Data – Related terms: textual analysis, thematic coding. Non-numeric information such as interview transcripts. AI techniques like topic modeling extract themes from mediation discussions. Challenges include preserving nuance and context.

Quantitative Data – Related terms: numeric, statistical analysis. Structured data like settlement amounts, durations, and case counts. AI models use this data for regression analysis. Challenges involve data normalization and outlier handling.

Real-Time Analytics – Related terms: stream processing, dashboards. Immediate processing of incoming data to provide up-to-date insights. During mediation sessions, AI can display sentiment trends live. Challenges include latency and ensuring data security.

Reinforcement Learning (RL) – Related terms: policy optimization, reward signal. Learning paradigm where agents learn via trial-and-error interactions with an environment. In mediation, RL can train a virtual negotiator to maximize agreement rates. Challenges involve defining appropriate reward functions and avoiding unintended strategies.

Regulatory Compliance – Related terms: legal standards, audit. Adherence to laws governing dispute-resolution services. AI systems must comply with regulations like the Uniform Mediation Act. Challenges include keeping up with evolving statutes.

Responsible AI – Related terms: ethical AI, governance. Framework ensuring AI systems are developed and deployed with accountability, fairness, and transparency. Mediation platforms adopt responsible AI policies to protect stakeholder interests. Challenges involve operationalizing principles and monitoring compliance.

Retrieval-Augmented Generation (RAG) – Related terms: knowledge-grounded generation, hybrid model. Combining large language models with external knowledge sources during text generation. Mediation AI can generate settlement drafts grounded in actual legal statutes. Challenges include ensuring source reliability and avoiding hallucination.

Risk Assessment – Related terms: threat analysis, mitigation. Evaluation of potential adverse outcomes. AI can assess risk of litigation versus mediation based on case features. Practical use: Presenting risk scores to parties. Challenges include quantifying intangible risks.

Rule-Based System – Related terms: expert system, decision tree. AI that follows explicit “if-then” rules. In mediation, rules may encode procedural steps (e.g., “If dispute amount > \$10,000, schedule joint session”). Challenges include rigidity and maintenance overhead.

Sentiment Analysis – Related terms: emotion detection, polarity. Determining emotional tone (positive,

negative, neutral) of text. Mediators can gauge party satisfaction levels. Example: Scoring a participant's messages for hostility. Challenges include sarcasm detection and domain-specific language.

Scenario Planning – Related terms: what-if analysis, foresight. Developing multiple plausible future outcomes. AI can generate alternative settlement scenarios based on varying concessions. Practical use: Helping parties visualize trade-offs. Challenges include over-complexity and user comprehension.

Scalable Architecture – Related terms: cloud computing, microservices. System design that can handle growing workloads. Mediation platforms must support many concurrent sessions. Challenges involve load balancing and cost management.

Semantic Search – Related terms: vector retrieval, ontology. Search that understands meaning rather than keywords alone. AI can retrieve relevant case law even if phrasing differs. Example: Finding "failure to deliver" cases when user writes "goods not received." Challenges include building high-quality embeddings.

Session Transcript – Related terms: log, record. Textual record of mediation dialogue. AI can automatically generate transcripts using speech-to-text. Practical application: Archiving for future reference. Challenges include accuracy and confidentiality.

Shared Decision-Making – Related terms: collaborative negotiation, joint problem solving. Approach where parties actively contribute to solutions. AI tools can propose options and solicit feedback, fostering shared ownership. Challenges include ensuring balanced participation.

Side-Letter Agreement – Related terms: ancillary contract, supplementary term. Additional agreement that modifies or clarifies the main settlement. AI can draft side-letters based on identified gaps. Challenges involve tracking multiple documents.

Simulation Training – Related terms: role-play, immersive learning. Using AI-driven virtual environments to train mediators. Example: A chatbot simulating a difficult disputant. Challenges include realism and transferability to real cases.

Social Bias – Related terms: cultural bias, fairness. Systemic prejudice stemming from societal stereotypes. AI may inadvertently reinforce stereotypes in settlement suggestions. Mitigation includes bias-aware training data. Challenges involve measuring subtle bias effects.

Speaker Diarization – Related terms: voice separation, speaker identification. Process of distinguishing who said what in an audio recording. Enables accurate attribution of statements in mediation transcripts. Challenges include overlapping speech and background noise.

Stakeholder Analysis – Related terms: interest mapping, power-interest grid. Identifying all parties affected by a dispute. AI can automatically map stakeholder networks from case documents. Practical use: Ensuring inclusive mediation. Challenges include hidden interests and dynamic relationships.

Standard Operating Procedure (SOP) – Related terms: process guide, workflow. Documented steps for consistent execution. Mediation AI can enforce SOPs by prompting users to complete required actions. Challenges involve adapting SOPs to varied case types.

Statistical Significance – Related terms: p-value, hypothesis testing. Measure indicating that an observed effect is unlikely due to chance. AI research on mediation outcomes must report significance to validate findings. Challenges include small sample sizes.

Structured Data – Related terms: tabular, relational. Data organized in rows and columns, such as case IDs, dates, and amounts. AI models ingest structured data for regression analysis. Challenges involve data integration from disparate sources.

Supervised Learning – Related terms: labelled data, classification. Training AI using input-output pairs. In mediation, labels could be “settled” vs. “Unsettled.” Challenges include obtaining high-quality labels and handling class imbalance.

Symbolic AI – Related terms: logic programming, knowledge representation. AI that manipulates symbols and rules rather than statistical patterns. Can encode legal doctrines explicitly. Challenges include brittleness and limited scalability.

Term Extraction – Related terms: keyword identification, phrase mining. Identifying important legal terms from documents. AI can auto-populate clause fields for mediators. Challenges include ambiguous terminology and multi-word expressions.

Text Summarization – Related terms: abstractive, extractive. Reducing long documents to concise summaries. Mediation AI can summarize case histories for quick review. Challenges involve preserving essential details and legal accuracy.

Third-Party Neutral – Related terms: mediator, arbitrator. An independent person facilitating dispute resolution. AI may act as a supplemental neutral by providing unbiased information. Challenges include maintaining perceived impartiality.

Transfer Learning – Related terms: pre-training, fine-tuning. Leveraging models trained on large corpora for specific tasks. A general language model can be fine-tuned on mediation transcripts. Challenges include catastrophic forgetting and domain mismatch.

Trustworthiness – Related terms: reliability, credibility. Degree to which users believe an AI system is reliable and ethical. Mediation platforms build trust through transparent explanations and audit trails. Challenges involve overcoming algorithmic skepticism.

Unstructured Data – Related terms: free text, audio. Information without a predefined format, such as emails or recordings. AI techniques like NLP convert unstructured data into usable insights. Challenges include noise and variable quality.

User Experience (UX) – Related terms: interface design, usability. Overall experience of interacting with a system. AI mediation tools must be intuitive for non-technical parties. Practical considerations include clear prompts and minimal cognitive load. Challenges involve reconciling complex functionalities with simplicity.

Validation Set – Related terms: hold-out data, model tuning. Subset of data used to evaluate model performance during development. Ensures mediation AI generalizes beyond training cases. Challenges

include data leakage and representativeness.

Verifiable Credential – Related terms: digital certificate, blockchain. Cryptographically secure proof of identity or qualification. Mediators can present verifiable credentials to parties for authenticity. Challenges include adoption and privacy.

Voice Biometrics – Related terms: speaker recognition, authentication. Using vocal characteristics to verify identity. AI can confirm that a party is speaking during a remote mediation session. Challenges involve background noise and spoofing attacks.

Weighted Loss Function – Related terms: cost-sensitive learning, class weighting. Adjusting model training to penalize certain errors more heavily. In mediation, misclassifying a high-risk dispute may be weighted higher. Challenges involve selecting appropriate weights.

Web Scraping – Related terms: data extraction, crawling. Automated retrieval of information from web pages. AI can gather public case law for training datasets. Challenges include legal restrictions and data quality.

Zero-Shot Learning – Related terms: few-shot, transfer learning. Ability of a model to handle tasks it has not seen during training. Mediation AI could interpret a novel dispute type without explicit examples. Challenges involve limited performance and reliance on broad knowledge.

Bias Mitigation – Related terms: fairness correction, de-biasing. Techniques to reduce unwanted biases in AI outputs. Methods include re-sampling, adversarial training, and post-processing adjustments. Challenges include trade-offs with accuracy and defining fairness metrics.

Case Law Repository – Related terms: legal database, precedent archive. Centralized collection of judicial decisions. AI indexes and searches the repository to support mediation advice. Challenges involve licensing, updates, and jurisdictional coverage.

Conflict Detection – Related terms: early warning system, sentiment spikes. Identifying emerging disputes from communication streams. AI monitors email or chat for rising tension and alerts parties. Challenges include privacy, false positives, and context interpretation.

Data Governance – Related terms: policy, stewardship. Framework for managing data quality, security, and compliance. Mediation platforms need clear governance to protect sensitive case information. Challenges include aligning multiple stakeholders and evolving regulations.

Decision Support System (DSS) – Related terms: analytics tool, recommendation engine. Software that aids decision makers by presenting relevant information and analyses. AI-enhanced DSS can suggest settlement ranges based on analytics. Challenges involve user trust and avoiding over-reliance.

Dispute Classification – Related terms: taxonomy, categorization. Assigning disputes to predefined types (e.g., Commercial, family). AI automates this to route cases to appropriate mediators. Challenges include overlapping categories and evolving dispute forms.

Explainability Dashboard – Related terms: visualization, XAI. Interface that displays model reasoning, such as feature contributions. Mediators can use it to justify AI suggestions to parties. Challenges include simplifying complex model internals for lay audiences.

Feedback Annotation – Related terms: labeling, crowdsourcing. Process of marking AI outputs with corrective information. Mediators annotate AI-generated settlement drafts to improve future performance. Challenges include annotation consistency and time cost.

Hybrid Intelligence – Related terms: human-AI collaboration, augmented intelligence. Combining human expertise with AI capabilities. In mediation, AI proposes options while humans evaluate nuance and ethics. Challenges involve seamless integration and role clarity.

In-Context Learning – Related terms: prompting, few-shot. Ability of large language models to adapt to a task using only examples within the prompt. Mediators can give a few example settlement clauses, and the model generates similar text. Challenges include prompt sensitivity and output control.

Jurisdictional Mapping – Related terms: legal geography, venue selection. Identifying the appropriate legal jurisdiction for a dispute. AI can suggest the most favorable jurisdiction based on case facts. Challenges involve complex cross-border rules and data availability.

Knowledge Distillation – Related terms: model compression, teacher-student. Transferring knowledge from a large “teacher” model to a smaller “student” model. Enables deployment of efficient mediation AI on edge devices. Challenges include loss of performance and maintaining fidelity.

Legal Analytics – Related terms: predictive modeling, outcome forecasting. Use of data-driven techniques to extract insights from legal information. AI provides mediators with statistics on settlement rates, time to resolution, and cost savings. Challenges include data heterogeneity and interpretability.

Model Interpretability – Related terms: explainability, transparency. Ability to understand how a model arrives at a decision. Techniques like SHAP values help mediators see which factors influenced a settlement suggestion. Challenges involve balancing depth of explanation with user comprehension.

Natural Language Generation (NLG) – Related terms: text synthesis, automated drafting. AI creates human-like text. Mediation platforms use NLG to draft settlement agreements, summary letters, and follow-up emails. Challenges include factual accuracy and legal compliance.

Ontology-Based Reasoning – Related terms: semantic inference, rule engine. Deriving conclusions from a structured knowledge base. AI can infer applicable statutes from dispute descriptions using an ontology. Challenges involve maintaining up-to-date ontologies and handling exceptions.

Privacy Impact Assessment (PIA) – Related terms: risk analysis, compliance. Evaluation of how personal data processing may affect privacy. Required for mediation platforms handling sensitive case data. Challenges include comprehensive scope definition and mitigation planning.

Recommender System – Related terms: collaborative filtering, content-based. Algorithm that suggests items based on user preferences. In mediation, recommends settlement clauses that similar parties accepted

previously. Challenges include cold-start problems and bias toward popular options.

Regulation-Aware AI – Related terms: compliance by design, policy-driven. AI systems explicitly encoded with regulatory constraints. For mediation, models ensure suggestions do not violate mandatory procedural rules. Challenges include encoding complex legal language into machine-readable form.

Risk-Adjusted Outcome – Related terms: expected value, utility. Outcome measure that incorporates both potential benefit and associated risk. AI can present parties with risk-adjusted settlement amounts. Challenges involve quantifying risk and communicating uncertainty.

Sentinel Node – Related terms: monitoring point, trigger. Designated component that detects abnormal behavior. In mediation AI, a sentinel node may flag unusually aggressive language for human review. Challenges include setting appropriate thresholds.

Semantic Role Labeling – Related terms: dependency parsing, predicate-argument. Identifying the semantic relationships in a sentence (who did what to whom). Helps AI extract obligations and rights from dispute statements. Challenges include handling complex legal constructions.

Session Analytics – Related terms: behavioral metrics, performance dashboard. Collection and analysis of data from mediation sessions (e.G., Speaking time, sentiment trends). AI provides mediators with insights to improve process efficiency. Challenges involve data granularity and privacy.

Simulation Modeling – Related terms: Monte Carlo, scenario analysis. Creating computational models that mimic real-world processes. AI can simulate negotiation dynamics under various concession strategies. Challenges include model validation and parameter selection.

Stakeholder Consent – Related terms: informed consent, opt-in. Obtaining agreement from all parties before data collection or AI assistance. Essential for ethical mediation practice. Challenges include ensuring comprehension and documenting consent.

Transferable Skills – Related terms: soft skills, mediation competencies. Abilities such as active listening and empathy that can be supported but not replaced by AI. Training programs integrate AI tools while reinforcing human skills. Challenges involve over-reliance on automation.

Uncertainty Quantification – Related terms: confidence intervals, Bayesian methods. Measuring the degree of confidence in AI predictions. Mediators can convey prediction ranges rather than point estimates. Challenges include communicating statistical concepts to lay parties.

Version Control – Related terms: git, change tracking. Managing revisions of AI models and mediation documents. Ensures reproducibility and auditability. Challenges involve coordinating multiple contributors and handling large model files.

Voice Activity Detection – Related terms: audio segmentation, speech detection. Determining when a speaker is speaking in an audio stream. Enables accurate speaker diarization for mediation recordings. Challenges include noisy environments and overlapping speech.

Weighted Majority Voting – Related terms: ensemble method, model aggregation. Combining predictions from multiple models, giving more influence to stronger performers. Improves robustness of settlement forecasts. Challenges include selecting appropriate weights and handling correlated errors.

Zero-Knowledge Proof – Related terms: cryptography, privacy. Technique allowing one party to prove knowledge of a fact without revealing the fact itself. Could be used for parties to verify compliance without disclosing sensitive details. Challenges include computational complexity and user understanding.