



TMLS2021 SUGGESTED TOPICS (NOT LIMITED TO)

[Submission page here](#)

ML IN INDUSTRY: (GENERAL)

- Ethical Design of Machine Learning for Products
- Cost Reduction Strategies in ML End to End Product Builds
- Data Lineage and Provenance for Datasets Used in ML
- Successfully Communication “Explainability” to Business Leaders
- Detecting and Addressing Dangerous Algorithmic Bias
- Customer Service (Proactive Issue Resolution, Demand Forecast)
- Customer Engagement (Recommendation Engines and Personalization)
- Predictive Analysis on Operations Transactions (Reducing Required Time)
- Entity Extraction from Documents
- Exploiting Quantum Technologies that Enable ML Algorithms not Feasible with GPUs
- Case Study of Applications Integrating ML with Blockchain
- Training Humans in the Loop to Operate AI Effectively (Operations)
- Reinforcement Learning in Industry; Examples

NLP

- Out-of-the-box performance with GPT-3 through an API
- Distilling GPT-3 Through Smaller Models

- How ML Engineers and Practitioners Program and Build Models — Given GPT-3 Advancements
- How Can you Maximize, or Optimize the Performance of Few-shotting?
- Engineering Around the Limitations of Few-shotting
- Over-coming English-only Models (Going to Market in Different Countries)
- Interpretability with Transformer Models GPT-3, etc.
- Human in the Loop Machine Learning
- ML Models for Devices
- Applications of ML/NLP/Speech Processing with Education.
- Topic Modelling with Bert
- Information Retrieval Using Bert or Other Techniques
- Adversarial Attacks in Textual Neural Networks

MODELS

- Model Versioning/Reproducibility
- Tracking Model Performance- How to Formulate Good Metrics
- Model Transparency and Regulation
- How to Successfully Determine the Strengths and Weaknesses of a Model (and Avoid Fallacies Around Measurement)

MLOPS & PRODUCTION

- Sustainable AI by Demonstrating ROI
- Understanding the Potential of ML Technologies & Importance of Whole-team Buy-in
- Operationalizing end-to-end Machine Learning Applications in a Systematic Manner
- Running Spark in Kubernetes Clusters

- Addressing the Most Common Challenges to get ML Applications Operational
- Testing and Validation of ML Pipelines
- Integration vs Monetization (Exploring Traits of Experiences ML Teams)
- Automating ML Deployment and CI/CD in ML
- Deploying Real-Time ML Apps
- Building and Maintaining a Scalable Real-time Inference System

HEALTHCARE & COVID-19

- AI in Drug Design – Using AI Methods to Influence Drug Design for Specific Targets
- Risk Management Approaches for ML in Healthcare
- Privacy in Healthcare (Federated learning, Differential Privacy)
- Case Studies of Healthcare Data on the Cloud (with Security in Mind)
- Accessing Health Data – Canadian, and International Examples
- Optimal Approaches for ML Adoption in Healthcare
- Biases You Want to Account for; Medical vs Management
- Corrective Case Studies; Explorations of When the Algorithm Produces a Negative Effect
- Efforts to Revitalize PHIPA (Updates)

AUTONOMOUS VEHICLES

- How is ML Enabling Connected and Autonomous Technologies Capabilities/Limitations, Safety, Robustness, Security
- Lidar; Really Needed it for AV's?
- V2V Case Study. Connectivity (V2X)
- Exploring End-to-End Transportation Research
- How Important are Simulations for AV's?

- How is AI/ML enabling connected and autonomous technologies (Perception, Sensing, Data, Localization ..)
- Specialized ML models and algorithms for Autonomy requirements
- (Lidar; do you really need it?)
- Intelligent transportation case study: Higher Efficiency in transportation or multi-modal transportation
- Smart City Case Study

TELECOMMUNICATIONS

- Overcoming the Struggles of Unconsolidated Data Lakes
- Maturing your Data Warehouse; Different Schema's
- Overcoming Data Fragmentation
- Ensuring Data Stream Quality Root Cause Analysis and Remediation
- Getting Away from Resource-Intensive Data Quality Monitoring

INSURANCE

- Risk Scoring, Optimizing Engagement, etc.
- Expediting Underwriting
- Processing the Claims with ML
- Fraud Detection
- Risk Reduction or Risk Avoidance: Using Advanced Analytical Methods to Anticipate Losses in Real-time

FINANCE

- Productionalization of ML Models. Monitoring, and Best Practices

- NLP Applications in Financial Areas
- Data Governance - Achieving Congruence Across the Org
- Open Banking Transformation; How Banks adapts to This Opportunity
- Analytics to ML - Required Skill Sets
- Different Methodologies Involved in the Model Tuning/Retraining
- Sustainable AI Practices Through Demonstrable ROI
- Causal ML's High Impact in Expanding Successful Small Scale Interventions
- How ML is Heightening Data Security
- Pricing Optimization Using Reinforcement Learning
- Pricing Optimization: Tools and Techniques
- MLOps for Finance

RETAIL

- Overcoming Covid's Model Disruption; Supervised Learning, Unsupervised Learning and Reinforcement Learning.
- Uses of Reinforcement Learning: Balancing (Exploration vs Exploitation)
- Strategies for Overcoming ML Engineering Skillset Deficiencies
- Overcoming News Recommendations & the Cold Start Problem
- When is Explainability Important / When is it Not?

MEDIA

- Labelling and Meta-data
- Comment Moderation
- Content Recommendations

*suggest more topics at info@torontomachinelearning.com

