

# **2025 OkIP International Conference on Artificial Intelligence Frontiers (CAIF)**

**Tuesday, 1 April 2025 - Thursday, 3 April 2025**

**Tiako Center, Oklahoma City, OK, USA & Online**

## **Scientific Tracks**

## **AI, Machine Learning (ML), and Applications**

General ML | Active/Supervised Learning  
Clustering/Unsupervised Learning  
Online Learning | Learning to rank  
Reinforcement Learning | Deep Learning (DL)  
Semi/Self Supervised Learning  
Time Series Analysis | Prediction/Forecasting  
DL Architectures/Generative-Models  
Deep Reinforcement Learning  
Computational Learning Theory  
Bandit/Game/Statistical-Learning Theory  
Optimization Methods and Techniques  
Convex/Non-Convex Optimization  
Matrix/Tensor Methods  
Stochastic/Online Optimizations  
Non-Smooth/Composite Optimization  
Probabilistic Inference | Graphical Models  
Bayesian/Monte-Carlo Methods  
Trustworthy Machine Learning  
ML Accountability/Causality  
ML Fairness/Privacy/Robustness  
Healthcare/DNA/Transportation  
Digital-Economy | Ecommerce Security  
Sustainability | Energy | Green Technology  
Language | Image  
Recommendation Systems

## **Agent-based, Automated, and Distributed Supports**

Multi-Agent Systems | Software Agents  
Dialogue System | Conversational Agent  
Decentralized/Distributed Intelligence  
Context-Aware Computing  
Group Decision Support Systems  
Intelligent Structures/Networks  
Design/Automation Approaches  
Sensor Networks Architectures  
Complex Manufacturing Processes  
Analytical Models | Path Planning  
Multistage Assembly Line  
Automated Inspection  
Natural Language Processing

## **Natural Language Processing (NLP)**

Conversational Agents | Dialogue System  
Large Language Models | Grammatical Tagging  
Natural Language Generation/Toolkit  
Linguistic Morphology | Morphological Analysis

Morphemesx Characteristics  
Language Models and Smoothing  
Document/Topic Classification/Notation  
Sequence Labeling |Speech Tagging  
Named Entity Recognition  
Lexical Semantics | Word Embeddings  
Phrase Structure | Dependency Syntax  
Sentence Semantics | Speech Recognition  
Question Answering | Machine Translation  
Document Summarization | Sentiment analysis  
Co-Reference Resolution  
Word sense disambiguation  
NLP Tools/Approaches | Statistical NLP  
AI/Machine/Deep Learning Techniques for NPL  
Convolutional/Recurrent Neural Networks

## **Intelligent Systems and Applications**

Medical Nanorobotics | Sensors | Actuators  
Sensory/Embedded Systems  
Embedded Systems | Digital Manufacturing  
Optimization/Evolutionary Algorithms  
Bioinformatics/Biotechnology Applications  
Computer-Vision Applications  
Sensor-Networks Applications  
Intelligent Design | Fuzzy Systems  
Soft/Ubiquitous/Pervasive Computing  
Pervasive/Wearable Computing  
Intelligence Manufacturing | Microsatellite  
Cyber-physical Systems | Kinematics  
AI in Nuclear-Energy/Earth-observation  
Signal/Audio/Video Processing  
Context-Awareness | Internet of Things  
Human-Computer Interactions

## **Knowledge-based and Control Supports**

Expert/Complex Systems  
Decision-Support Systems  
Intelligent Control/Supervision Systems  
Knowledge Engineering  
Neural Networks | Structural Optimization  
Intelligent Teleoperation  
Intelligent Shopfloor  
Collision Avoidance | Fault Diagnosis  
Object Detection and Tracking | Path Planning  
Position/Quality/Motion Control  
Predictive Control  
Preventive Maintenance | Defect Detection

## Automation, Robotics and Vehicles

Unmanned Vehicles/Robots  
Autonomous Vehicles/Robots  
Human-Robot Interfaces/Interactions  
Intelligent Telerobotics | Service Robots  
Robotic Manipulators/Arms/Applications  
Computer Vision  
Industrial/Agricultural Robotics  
Self-Driving Vehicles | Cloud-based Driving  
Vehicular ad hoc Networks | Traffic Detection  
Vehicle-to-Vehicle Communication  
Vehicle Platooning | Steering Systems  
Vehicle dynamics | Traffic Computing  
AI in Manufacturing Automation  
Lights-out Manufacturing  
New Concepts/Products Rapid Scaling  
Business Process Automation | IT Automation  
Network Automation | Industrial Automation  
Automating Integration between Systems  
Fixed Automation | Programmable Automation  
Flexible Automation | Integrated Automation

## Glocal AI

Sustainable AI  
AI Solutions to Global Problems  
Socially Intelligent Robots  
Crowdsourcing AI Solutions  
Machine Vision and Safety  
AI Technological Progress  
AI Societal Accountability  
Conservation and Biodiversity  
Human Development Tracking  
Neurotechnologies, AI and Human Rights  
AI Risks/Benefits | AI and Financial Inclusion  
AI and Environmental Efficiency  
Artistic/Hybrid Intelligence  
AI for Diversity/Inclusion/Equity/Equality  
AI in Weather/Climate  
Addressing the Dark Sides of AI  
AI for Future Communities

## Generative AI Tools and Models

Generative AI Tools/Models/Applications  
Legal and technical challenges  
Empathy and Ethical Creativity  
Explainability/Robustness/Trustworthy AI  
AI-Powered Decision Making Tools  
Responsible/Fair/Unbiased/Auditable AI  
Data Modality/Type  
Unimodal/Multimodal Systems

Generative AI Software/Hardware  
Chatbot|Text-to-image | Text-to-video  
Smaller/Larger/Language Models  
Advanced Computing | Semiconductors  
GPU | AI Accelerator Chips  
Government/Business/Individuals Concerns  
Job Losses | Deepfakes | Cybercrime  
Misuse in Journalism | Regulations

## **AI in Computing and Society**

AI/Cognition in Cloud Computing  
AI in Software Engineering  
AI in Data and Big Data  
Theories and Approaches of Blockchain  
AI in Electronic Commerce  
AI in Education  
Intelligent Learning/Tutoring/Teaching  
Collaborative Knowledge Building Activities  
AI in the Healthcare System  
AI in High-Performance Computing  
AI in CyberSecurity  
IA in Power/Energy  
AI and Knowledge Management Process  
AI, Web-Based Environments, and Adaptive Systems  
Smart Systems/Infrastructures/Construction/City  
Grid Modernization | Efficient Wind Turbines  
Digital Communication and Control  
Evolution/Integration of Renewable Energy  
Smart Grids/Microgrids/Meters/Appliances  
Internet of Things (IoT) and Sustainability  
Intelligent Transportation Systems

## **AI in Education**

AI-assisted Educational Methods/Tools/Technologies  
Interactive Pedagogical Technologies/Agents  
Educational Data-Mining/Knowledge-Representation  
Virtual/Augmented Reality in Education  
Intelligent Teaching/Learning Models  
Problem-Solving Methods/Processes  
Collaborative/Community/Group Learning  
Computational Thinking and Model-building  
Learning Motivation/Engagement and Feedbacks  
Learning Engagement/Companions Tools  
Teaching Agent Support  
Explainable Teaching/Learning/Tutoring Models  
Learning Contexts and Informal Learning  
Game-based learning; Collaborative and group learning;  
Ubiquitous Learning Environments  
Lifelong/Professional/Informal Learning  
Evaluation Methods/Techniques/Tools

Equity and Inclusion in Education  
Ethics and AI in Education  
AI in k-12 Education  
Synchronous/Asynchronous/Mobile Learning  
Virtual-Active/Video-Based/Mixed-Reality Learning

## **AI Engineering**

Data Acquisition/Sensing/Migration/Integration  
Data Verification/Validation  
Data Sharing/Representation/Conversion  
Data Privacy/Integrity/Security/Corruption  
Data Dependence Quality/Restauration  
Data Coverage/Analysis/Constraints  
Data Structure/Prediction/Change/Evolution  
Data Sensitivity Modelling  
Human-centered AI  
Operational Environment/Condition/Situation  
System Limitation/Self-Awareness  
Human-Needs Translation  
Competency-aware Systems  
Introspection Assessment/Implementation  
Generic Introspection Modeling  
Environment Construction/Reconstruction/Evaluation  
System Risk/Vulnerability/MultiTasking  
Adversarial Aspects/Explainability  
System Accuracy/Robustness  
System Evaluation/Predictability  
AI System Design  
Deep Human Understanding  
Human Behavior/Value Understanding/Interpretation  
Develop/Share/Reuse AI Infrastructure/Model/Data

## **Software Engineering for AI**

Data Management/Observability Tools  
Data Ingestion/Cleansing/Protection  
Data Monitoring/Verification/Validation  
Data Evolution/Change/Pipeline Management  
Data Change and Malicious Data Injection  
Training Data and Problem Correlation  
Components/Data/Models Uncertainty Support  
Components/Data/Models Evolution/Change Management  
Systems/Components Verification/Validation  
Systems/Components Robustness/Security  
Problem Requirement Elicitations  
Team Formation/Qualification/Background  
Data Engineering Approaches  
Model Building/Customization/Selection/Refinement,  
Hardware Infrastructure Selection  
Software Architecting Expertise  
Innovative Software Engineering Expertise

Model building/Customization/Evolution/Change  
Algorithm Selection/Evolution/Change Management  
System Evolution and Environmental Change  
System Intrusion/Attacks Detection/Prevention  
Security Challenges | User Experience Consideration  
System Evaluation/Verification/Validation  
System Performance/Scalability  
Bandwidth/Resource/Expertise/Time Management  
Variant/Version/Bias Management  
Output Assurance/Interpretation  
Continuous Monitoring and Instrumentation  
Component Development/Coupling/Extensibility/Scalability  
Ethical/Gender/Equity/Bias/Policy/Accessibility Concern

## **Circuit, Design and Hardware for AI**

Circuit and Design  
Hardware-Software Co-design  
Electronic System Design/Implementation/Demonstration  
Circuit and System Innovations  
Theories and Artificial Intelligence in Circuits/Systems  
Emerging Printed Circuit Boards  
Smart Tool/Platform/Infrastructure  
Advanced Neural Network Design  
Neuromorphic Computing/Chip  
High-Performance/Cloud Computing  
Intelligent Hardware Design Systems  
Leakage Reduction Techniques  
Hardware acceleration Techniques  
Mathematical foundations  
Theories on Linear Circuits and Systems  
Complex Variables | Linear Equations and Matrices  
Convolution | Filter Designs | Laplace and Fourier transformations  
Emerging Design Automation  
Circuit Design and Layout Rules  
Circuits Formal Verification/Validation  
Reconfigurable Design | Circuit Theory  
Ambient/Miniaturization Intelligence

## **AI in Healthcare/Bioinformatics/Biotechnology**

AI in Healthcare/Bioinformatics/Biotechnology  
Decision Support Systems  
Medical Data Mining Analysis  
Health Expert Systems | eHealth Blockchain  
Health Knowledge Management  
Cognitive Informatics | Affective Computing  
Physiological and Behavioral Modeling  
Pattern Recognition and Machine Learning  
Clinical Decision Support Systems  
Games for Health | Motion Gaming  
Health Promotion AI | Exergaming

Healthcare Predictive Modeling  
Smart, Personalized Healthcare Guidance  
AI Learning-Recommendations  
Healthcare Explainable AI  
Classification Algorithms  
Healthcare Advisor Model  
Big Data in Healthcare and Biomedical  
Big Data in Bioinformatics and Biotechnology  
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