Title	Abstract	Optimized Factors	How it optimizes factors	Data, Model, and Workflow	Results
Spatial Planning of Urban Communities,	AI model for generating efficient urban spatial plans using graph neural networks and reinforcement learning.	Accessibility, sustainability, equality.	Optimizes by modeling urban areas as graphs, using reinforcement learning to develop efficient spatial plans.	Uses synthetic and real-world data. Model involves reinforcement learning with GNNs. Workflow includes graph modeling, DRL framework, and GNN state encoder.	Demonstrated improvements over human-designed plans in efficiency and adaptability.
AI Agent as Urban Planner	Consensus-based MARL framework for land use optimization accommodating diverse interests.	Land use optimization, stakeholder consensus.	Uses MARL to simulate stakeholder negotiation, optimizing land use for sustainability and livability.	Real-world data with MARL and GNNs. Workflow involves urban readjustment modeling, reward design, and experimental validation.	Improved global benefits and satisfaction across demographics.
Performance-Based Urban Block Generative Design	DRL and computer vision for optimizing urban block layouts for sustainability and space utilization.	Urban density, sustainability, space utilization.	Iteratively refines designs based on performance metrics, using computer vision for spatial analysis.	Design configurations and metrics, using DRL and computer vision. The workflow includes iterative refinement and spatial data interpretation.	Produced designs that meet specified performance criteria.
Solve Spatial Optimization Problem Using DRL	SpoNet framework for spatial optimization in urban logistics and emergency management.	Facility allocation, transportation, emergency response.	Models spatial problems as MDPs, optimizing with DRL for efficient resource allocation.	Spatial data, SpoNet with DRL, attention models, and GRUs in workflow.	Significantly faster solution times and improved accuracy over traditional methods.
Solving the MCLP with DRL	DeepMCLP approach for optimizing facility placement using DRL.	Facility placement for improved accessibility and service coverage.	Models MCLP as an MDP, using DRL for facility placement optimization.	Demand and facility points data, DRL with attention mechanism. Workflow includes MCLP modeling, attention-based encoding, and facility selection.	Efficient solving of MCLP, demonstrating faster solving times and smaller optimality gaps.
Urban Planning and Smart City Decision Management,	BDA-embedded architecture for real-time urban planning and management.	Decision-making, service quality improvement.	Utilizes BDA for integrating real-time data processing in urban planning.	Urban Big Data, BDA with a three-layer architecture. Workflow integrates data aggregation, management, and service layers with Hadoop and Apache Spark.	Demonstrated improvements in decision-making and urban service quality.

Title	Abstract	Urban Factors Optimized	How It Optimizes	Data, Model, and Workflow	Results
Suggestive Site Planning with Conditional GAN	Introduces (CGAN) for generating building footprints for site planning by learning from existing urban environments, utilizing urban GIS data.	Site planning, building footprint generation.	Employs CGAN to generate site plans that consider urban layout and constraints, aiming for practical application in architecture and urban design.	Utilizes open source GIS data, processed and trained with Pix2PixHD CGAN model within the TensorFlow , visualization with Rhinoceros and Grasshopper.	Provides a method for interactive site planning, capable of generating building footprints and site layouts, tested on Boston's urban data.
Social-based City Reconstruction Planning in case of natural disasters	Proposes a DRL model for city reconstruction planning post-disasters, focusing on infrastructure, community benefits, and political priorities.	Infrastructure reconstruction, community benefits, political priorities.	Uses DRL to generate reconstruction plans considering infrastructure dependencies, social benefits, and political priorities.	Geographic information system data for modeling, double deep Q-learning for generating plans.	Generates viable reconstruction plans balancing stakeholder interests and constraints.
Human Behavior Deep Recognition Architecture for Smart City Applications in the 5G Environment	Introduces a deep learning architecture (PMDRA) for human behavior recognition in smart cities, utilizing 5G's capabilities.	Human behavior recognition, smart city services enhancement.	Enhances feature extraction and recognition for HBR using hierarchical deep learning networks, adjusting dynamically to real-world scenarios.	Utilizes hierarchical deep learning networks within a PMDRA, leveraging 5G technology.	Improves adaptability and effectiveness of HBR for smart city applications.
Routing for Crowd Management in Smart Cities	Discusses optimizing urban routing for effective crowd management using DRL techniques.	Crowd management, urban routing efficiency.	Applies DRL to optimize routing paths for crowd management, enhancing urban mobility and safety.	Employs DRL with urban mobility data to model and optimize crowd routing.	Enhances routing efficiency and safety in urban environments for crowd management.
Daily Schedule Recommendation in Urban Life Based on Deep Reinforcement Learning	Proposes a DRL-based model for daily schedule recommendation, focusing on point-of-interest (POI) selection and sequencing.	Daily schedule optimization, POI selection and sequencing.	Uses DRL to recommend daily schedules based on user location and needs, optimizing time and service quality.	Real-world datasets, DRL framework for activity factor balancing and POI recommendation.	Demonstrates adaptiveness and effectiveness in recommending daily schedules, improving service quality and time efficiency.