

UDC 524.834

Artificial intelligence for teleparallel tilted cosmology

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Abstract. Artificial intelligence (AI) helps the researcher to study the hidden layer of the dark energy. AI observation for distant type Ia supernovae (SNIa) provides the nature of the accelerating universe. AI can be used for SNIa and cosmic microwave background radiation (CMB) data manipulation. In the tilted cosmology, the fluid velocity is not orthogonal to the group of orbits. AI in Teleparallel tilted cosmological yield better data analysis for Wilkinson microwave anisotropy probe (WMAP)

Keywords: artificial intelligence, tilted model, teleparallel gravity, CMB, WMAP

Introduction. Methods based on artificial intelligence (AI) and machine learning (ML) has a large cosmological applications. Machine learning is starting to see increased adoption across different subfields of and for various applications within cosmology [1]. Time Domain and Multi-messenger Astrophysics in the time domain, machine learning techniques have a key role to play in the era of wide-field surveys across the electromagnetic and gravitational wave spectrum. Of these surveys, the Vera C. Rubin Observatory's Legacy Survey of Space and Time (LSST) will produce ~ 10 million alerts from time-domain phenomena every night—higher than can conceivably be inspected visually by the entire astronomical time-domain community in a lifetime. Very Large Array (ngVLA), CMBS4, the LIGO-VIRGO-Kagra Collaboration and numerous other data-intensive experiments over the next decade. Each of these provide us a different, multi-messenger window into the variable sky and the cosmos. The order-of-magnitude increase in alerts with LSST will dramatically increase the stress on available spectroscopic resources. In a cosmological context, Type Ia supernovae are especially important for measurements of the Hubble constant at a unique rung of the distance ladder. ML techniques are essential to classify these events in real time analysis [1]. Several authors studied tilted cosmological models [2–12].

Methods and materials; results. We derived the Teleparallel gravity field equations for tilted LRS Bianchi type –I cosmological model in section 1. We obtained the consequences of the field equations in section 2. We solved the field equations for two different cases and obtained explicit exact solutions by using AI Computation 3. We mentioned AI simulations of the physical and geometrical properties of the solutions in section 4.

Conclusion. In this paper, we have investigated tilted Bianchi type — I cosmological model in teleparallel gravity. By using AI computation, we find that the pressure, energy density, tilt angle, heat conduction vector of the fluid distribution,

the scalar expansion are constants at the initial time and gradually decreases with respect to time. The AI simulation shows that the spatial volume of the universe are constants at time $t=0$ and gradually increase with respect to time.

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