



## The Role of Artificial Intelligence in Enhancing Electric Vehicle (EV) Charging Infrastructure: A Review

Sunkwa Joshua<sup>1</sup>, Prince Clement Addo<sup>2</sup>, Oliver Kufuor Boansi<sup>3</sup>, Enoch Quansah Effah<sup>4</sup>

<sup>1,2,3</sup>Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development

<sup>4</sup> Assistant Lecturer, Wiawso College of Education, Sefwi Wiawso, Ghana

### ARTICLE INFO

#### Keywords:

Electric Vehicle, Artificial Intelligence, Charging infrastructure, Predictive AI, Algorithm

Received: Sep, 23, 2024

Accepted: Nov, 18, 2024

Published: Dec, 25, 2024

### ABSTRACT

With Electric Vehicles (EV) achieving higher adoption in the world, it becomes very necessary to have an EV charging infrastructure that is robust and intelligent and can adapt to changes per the number of EVs on our transportation grids. This paper presents a review of EV charging systems infrastructure and how Artificial Intelligence (AI) will help improve the EV charging grid, especially in terms of prediction ability and optimization benefits that AI can bring to our grid system. AI can dramatically enhance the user experience through predictive route planning, personal charging recommendations, and proactive maintenance alerts. AI-driven ADAS makes vehicles safer to operate and more efficient. Moreover, fog computing is intended to reduce latency and permit real-time data processing, enhancing responsiveness and reliability in the grid while recharging. Despite these benefits, the high costs, longer charging times, and inadequate charging infrastructure make EVs slow in adoption. This paper calls for relentless innovation in AI technologies and infrastructure to make this integration possible.

### 1. INTRODUCTION

Fossil fuels and natural gas have been used over the years to power up our power grids and it currently amounts to about 80% of the world's energy (Environmental and Energy Study Institute, 2025). There is the need to switch to a much cleaner source of energy to combat global warming and that is where electronic vehicles come in.

A report by the European Union stated that the transport sector is responsible for almost 28% of the total carbon dioxide (CO<sub>2</sub>) emissions, while the road transport is accountable for over 70% of the transport sector emissions (European Commission, 2025).

With an annual growth rate of 40% as predicted by (Abnett, 2022), there is the need to create an efficient charging grid that is self-aware and self-learning, to accommodate the needs of Electronic

Vehicle (EV) users.

While Electronic vehicles (EVs) are much more economical, highly efficient in noise reduction, low maintenance options and the adoption of Artificial Intelligence (AI) to automate its use are several reasons its being adopted by the masses and people are warming up to its usage globally. As much as it is a great option, the adoption of EVs also comes with its challenges such as low ranges, costlier compared to the traditional modes of transportation (petrol and diesel vehicles) and inadequate charging stations are hinderances that are making their adoption slower than expected. There are some technical challenges that need to be resolved to make the electrical charging infrastructure a success.

By 2035, all cars within the EU must have zero carbon emissions and due to that, Sweden has

started building its electrical road to charge cars as they ply those roads (Rigas et al., 2015). To estimate the effective usage of these charging stations in terms of capacity use, daily rates and other variables, AI is being introduced to enhance this project across the globe.

There is the need to adopt deep learning using neural networks to enhance the efficient development of EV charging grid infrastructure as AI will help with forecasting accuracy, scheduling performance, error tracking and resisting perturbation of all charging stations to make them efficient as much as possible.

In developing and enhancing smart and efficient charging infrastructure, data profiling of EV and its users, demand forecasting, charging optimizations, analysis of potential hotspots for EV charging stations and algorithms for AI training must be considered and employed.

The integration of AI in Electric Vehicle Charging Infrastructure represents a transformative leap, offering solutions to multifaceted challenges ranging from optimal charging station placement to grid resilience.

## 2. RELATED WORK

The increasing number of EVs comes with the huge task of providing efficient and reliable charging stations to accommodate its usage. There are many benefits of AI in the charging grids such as battery charging algorithms, network congestion management algorithms, and efficient EV routing as stipulated by (Sanguesa et al., 2021). (Abnett, 2022) also reiterated the role of AI in facilitating the charging process, adaptive charging, and mobility analysis of EVs, and a few other important aspects of AI in the EV industry. Also, they discussed the Internet of EVs (IoEVs) which will consist of humans, vehicles, data, EV infrastructure, data and algorithms.

Modern EV charging grid infrastructure has the potential and ability to perform the underlisted tasks (Omitaomu & Niu, 2021).

Monitor and analyze data between nodes of the infrastructure grid

1. Share data among devices and systems
2. Perform load scheduling and forecasting and
3. Fault detection.

The evolution of electric vehicle (EV) charging infrastructure has been marked by a growing

recognition of the complexity in managing power demand, grid reliability, and consumer behavior. Early technological interventions laid the groundwork for what would later become opportunities for artificial intelligence (AI) integration, though many of these foundational works operated without leveraging intelligent systems directly. (Lam et al., 2011) proposed one of the earliest system-level frameworks EVAMI (Electric Vehicle Advanced Metering Infrastructure) which enabled demand response and dynamic pricing using Power Line Communication (PLC). The study demonstrated notable success in reducing peak demand and redistributing load, offering a glimpse into the potential of data-driven energy management. However, it suffered from interference challenges in high-density areas and was limited in rural scalability. Importantly, while real-time data collection was employed, the absence of AI left a gap in predictive and adaptive load control, which could have enhanced the responsiveness of the system to real-world variability.

A contrasting focus emerged in (Bablo, 2016) , which shifted attention from systems performance to the standardization of EV charging technologies. The paper offered a detailed analysis of global safety standards (UL, SAE, IEC), highlighting interoperability issues and certification barriers. Unlike (Abnett, 2022), whose work was technically rooted in infrastructure communication, emphasized regulatory coherence. Yet both studies shared a critical limitation: neither accounted for the dynamic nature of EV usage or integrated intelligent mechanisms to manage fluctuating loads, which would later emerge as a key deficiency addressed by AI. (Altaieb & Rajnai, 2020) took a step toward data-centred decision-making by introducing a KPI-driven dashboard for infrastructure planning based on actual usage patterns in Dutch cities. This marked an improvement in performance evaluation using real-time data, yet the model was static and reactive relying on predetermined occupancy thresholds without the ability to forecast demand surges or optimize charging behavior. In this context, Maase et al.'s work fills a data visualization gap left by Bablo but still lacks the predictive power that machine learning or reinforcement learning could offer (Maase et al., 2018).

Meanwhile, (Abnett, 2022) addressed global EV

adoption trends and infrastructure scalability, noting China's dominance and the projected growth to 250 million EVs by 2030. Their emphasis on grid capacity and charger placement represented a critical systems-level viewpoint that complemented the regional focus of (Altaleb & Rajnai, 2020) However, (Kandil et al., 2024) relied heavily on secondary sources and theoretical modeling, missing opportunities for empirical validation. While they acknowledged the relevance of AI in load balancing and demand prediction, no explicit frameworks were proposed - thus reinforcing a recurring theme: an awareness of AI's potential without its actual deployment. From a geographic and environmental perspective, (Arévalo et al., 2024) filled a niche by studying the influence of extreme cold on charging efficiency in Tyumen, Russia. Their statistical analysis underscored the variability in EV performance due to weather session durations increased by 46%, and energy transfer dropped by 60% during winter. Their findings introduced the critical role of climatic conditions, which was largely overlooked in earlier works. These environmental fluctuations make a strong case for AI-driven, climate-sensitive charging systems capable of forecasting usage based on real-time meteorological and behavioural data—a gap still unresolved by previous studies. In parallel, (Scalecomputing, 2025) tackled operational logistics in EV ride-hailing services, examining optimal fleet sizes and charger density using deterministic modeling. Unlike earlier infrastructural studies, Varma et al. introduced the idea of dispatch optimization and battery management, linking infrastructure to service delivery. However, their reliance on closed-form equations and static policies—such as the Power-of-dd policy—fell short in handling dynamic, time-varying demand scenarios. This reveals yet another opportunity for AI, particularly reinforcement learning algorithms, to learn and adapt to real-time demand changes, enhancing both fleet utilization and charger efficiency. The need for a more comprehensive and multidisciplinary optimization approach was explicitly addressed by (Antony & Whenish, 2021), who conducted a systematic review of 77 studies on fast-charging station (FCS) planning. Unlike previous works that separated transportation and electrical considerations, (Switch.com, 2025) integrated the two, noting a disconnect between

static models and the dynamic nature of EV traffic and grid flow. The study pointed toward hybrid optimization models and advocated for evolutionary algorithms but acknowledged their computational intensity. This foreshadowed the potential role of AI-enabled hybrid models, which could offer a balance between computational efficiency and high solution accuracy especially in real-time environments.

Finally, (Scalecomputing, 2025) provided a comprehensive systematic review of AI applications in energy management systems (EMS) for EVs. Analyzing 46 peer-reviewed studies, the authors found that AI has been successfully employed in real-time energy control, fault diagnosis, and predictive maintenance. Techniques such as machine learning, deep learning, and reinforcement learning have shown promise in improving battery lifespan, energy efficiency, and system responsiveness. However, the review also highlighted persistent gaps particularly the lack of real-world validations, poor interoperability across AI systems, and underdeveloped cybersecurity mechanisms. These shortcomings present a call to action: to bridge AI theory and practice in EV infrastructure. Across the literature, there is a visible progression from early communication technologies and regulatory frameworks to data dashboards and optimization models. Yet, a unifying limitation emerges: most works either underutilize or entirely omit AI integration, despite its acknowledged potential. Studies like (Antony & Whenish, 2021) and (Mo et al., 2021) laid essential groundwork in data architecture and real-time monitoring but lacked predictive intelligence. Standardization efforts (Antony & Whenish, 2021) and global policy analyses (Bayram et al., 2012) provided structural insight but were inherently static. Regional studies (Bayram et al., 2012) and operations research (Weerdt et al., 2013) showed where intelligent adaptation is most needed. Systematic reviews by (Zamanov, 2025) and (Tranfield et al., 2003) collectively affirmed the need for AI-powered, scalable, interoperable solutions - capable of addressing diverse, real-world challenges in EV charging ecosystems.

### 3. METHODOLOGY

#### 3.1 Method

This study employs the use of bibliometric analysis

to investigate and analyze the role of Artificial intelligence in enhancing the charging infrastructure using an inductive approach and conducting a systematic literature review, following (Arévalo et al., 2024). Publish or Perish software was used to extract data from Google Scholar using the parameters “AI, EV charging grid infrastructure, Load Forecasting AI smart grid, Open charge point protocol” between 2021 and 2024 spanning 4 years and a document count of 500 papers.

The datasheet generated was analyzed in VoS viewer to analyze their statistical impact, and this gave an overview on researched areas and identifying potential research gaps. The results help to understand how AI can help in optimizing our charging infrastructure, taking into consideration the knowledge, perception and applications of AI among others.

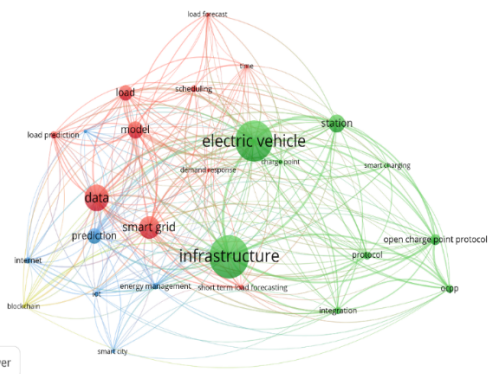


Figure 1 Bibliometric analysis diagram

3.2 Inclusion Criteria

The following inclusion criteria employed during this review process are as follows

1. Peer reviewed articles: Articles from top reputable journals made up the dataset. These articles underwent extensive peer review processes.
2. Current publications: Our period under review was from 2021-2024 (4 years) ensuring that the information in these thematic areas was current and relevant as there have been significant development in AI in the Charging Grid Infrastructure.
3. Relevant articles: The keywords used to source these articles made it possible to select only relevant articles for this research.

3.3 Exclusion criteria

The following were factors that excluded articles from this research

1. Registries were not included in the review process: This ensured that experimental cases studies, argumentative simulation and clinical trials were not considered for this research.
2. Non-peer reviewed journals: Journals that do not use peer reviewed processes were excluded to give credibility to the outcome of this paper
3. Duplicate Articles: 7 Articles that repeated were removed from the large pool dataset.

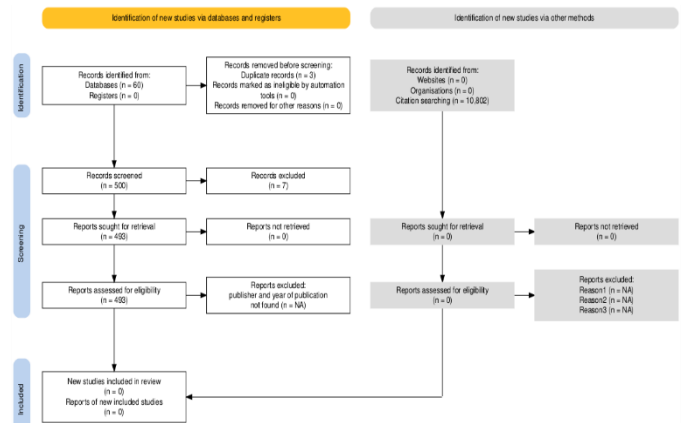


Figure 2 Prisma Methodology diagram.

Year of publications

This research under review sourced articles that were published from 2020 to 2024. Below is a table that shows a breakdown of articles per year.

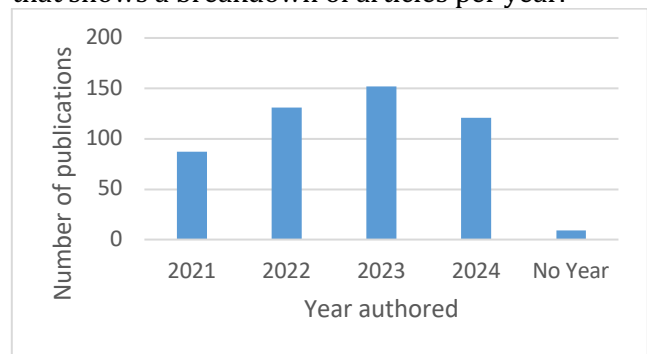


Figure 3 Published articles and their year of publication

The sourced documents came from prestigious databases such as Elsevier, ieeexplore.ieee.org, MDPI, Springer, Taylor and Francis and Wiley Online Library (Kandil et al., 2024). These journals

have a high-quality peer reviewed process making their articles credible for academic and professional use. The following inclusion and exclusion criteria were used to determine the outcome of the PRISMA Methodology. These inclusion and exclusion criteria were relevant to get the utmost and quality outcome of this paper.

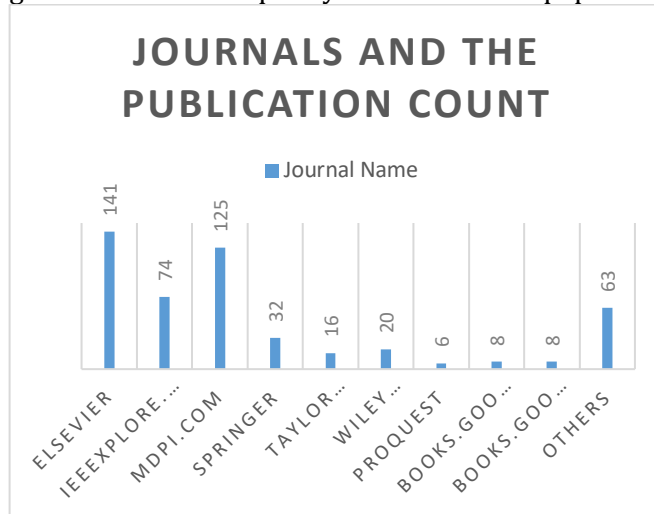


Figure 4 Journal publication count.

#### 4. FINDINGS

Over the years, much research has been conducted on electronic vehicles, their infrastructure and smart grids but little research has been conducted on creating smart cities, blockchain technology, load prediction, predictive algorithms, smart charging, load forecasting among many others in the EV charging infrastructure, load prediction among many others. This paper will look at some of the areas in which AI can help improve the EV charging grid infrastructure. The following outlines some areas in which AI will help enhance the efficiency of our EV charging Infrastructure based on the research gaps from the VoS viewer diagram representation of the selected articles.

##### 4.1 Predictive AI algorithms

With increasing demand for EVs and the adoption and integration of AI into everyday operations, charging patterns, predictive analysis, and load forecasting among many others have become very easy to manage through AI algorithms. To have efficient and reliant charging grids, AI will have to play a vital role to help predict, optimize and analyze charging demands. AI algorithms can analyze charging patterns and other relevant factors to predict future charging demands of

users. By anticipating these peak and down times by AI algorithms, there can be decongestion at various charging stations where cars can be redirected during peak periods.

Sensors in EVs and charging stations collect real time data about vehicle charging patterns, grid load, and energy prices. This information forms the basis for optimizing the charging process (Kandil et al., 2024). The use of smart chips embedded into EVs helps to collect speed, measure voltage usage and charging patterns in real time. Using machine learning techniques in analyzing data collected over time will help in the development of better algorithms for both the grid infrastructure and the EV user. This will help manage load forecasting and demand on the charging grids. AI algorithms will be able to predict the nearest charging station by analyzing the battery capacity, destination of driver, available charging stations enroute to users of EVs making the grids smarter.

According to (Varma et al., 2023), they proposed the use of a congesting algorithm that predicts congestion at various charging stations in terms of time travel. A software component that exchanges information with other units in the grid infrastructure such as cars and charging stations was introduced. They proposed the use of an Intention Aware Routing System (IARS) into the grid system. Vehicles using this communication algorithm will be sharing information of intent to charge with other units and charging stations as well as their locations and this will help make it possible for the data to be analyzed in real time by AI machine learning algorithms to efficiently route cars by suggesting charging stations to avoid congestion at various charging stations. It was deduced that if each EV takes 30 minutes to charge as against the normal going to the various EV charging stations without any routing protocol, the wait time outperforms by as much as 80%. If the IARS communication protocol system was continuously used, there would be efficient routing of EVs among the charging stations. (Gorbunova & Anisimov, 2020) also envisioned that the infrastructure such as charging stations and EVs should be able to exchange information about energy availability, distance, and congestion levels among many others. This will go a long way for AI to learn and make the charging grid infrastructure a solid and efficient one.

(Abnett, 2022) also proposed that the

communication between EVs and charging points is reliable, if not continuous. This assumption backed the hypothesis proved by (Altaieb & Rajnai, 2020).

#### 4.2 Smart charging Stations and power grid integration

By integrating AI into our charging stations and with our power grids, power can be dynamically loaded to ensure that energy distribution is fairly disbursed among all connected vehicles. AI will analyze charging data in real-time and prevent sudden power fluctuations in the charging grid.

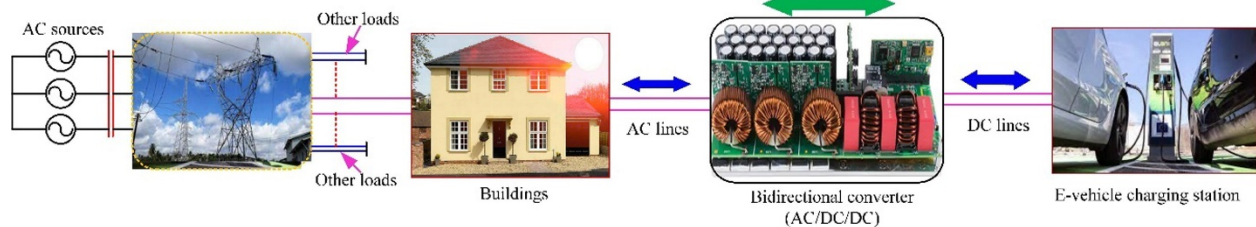


Figure 5 Smart charging infrastructure

Efficient power usage analysis by AI helps EVs, charging stations and power grids to allocate and distribute power.

#### 4.3 Better User Experience

The predictive analysis of AI can enhance customers' experience when using EVs by suggesting and plotting better routes based on users travel data, charging cycles and other preferences of EV users. This will make driving EVs much more pleasant for ordinary drivers. With a wide range and volume of data recorded each passing second, AI can sift through these data to predict traffic patterns, optimize travelling routes and suggest the most efficient routes just like google maps. By considering real-time traffic updates, road conditions, and weather forecasts, AI can dynamically adjust routes to avoid delays and ensure that drivers reach their destinations efficiently.

With the introduction of CCTVs on major roads, AI can analyze traffic on our roads based on vehicular usage and route cars efficiently to less busy routes to enhance better user experience. Efficient route management comes also with efficient energy usage.

#### 4.4 Advanced Driver Assistance Systems (ADAS)

Traditional fossil powered cars are equipped with seatbelts, airbags and some with proximity sensors for safety reasons to protect passengers. Modern

The effectiveness of AI algorithms will help with the efficient distribution of power to charging stations within a grid based on their energy consumption, making the allocation of power optimal for use avoiding energy wastage.

Transfer of power to the various charging grids can come from different sources and needs to be managed efficiently to avoid overloads whether the power to the various grids is unidirectional or bidirectional. The figure below shows the power directional flow between EVs and the charging grids.

vehicles and EVs are now equipped with adaptive cruise controls, lane departure warning systems, night visions, pedestrian detection, parking assistance, automatic emergency brake systems, alcohol interlock systems and all these AI features helps to make the charging grid very smart (Altaieb & Rajnai, 2020).

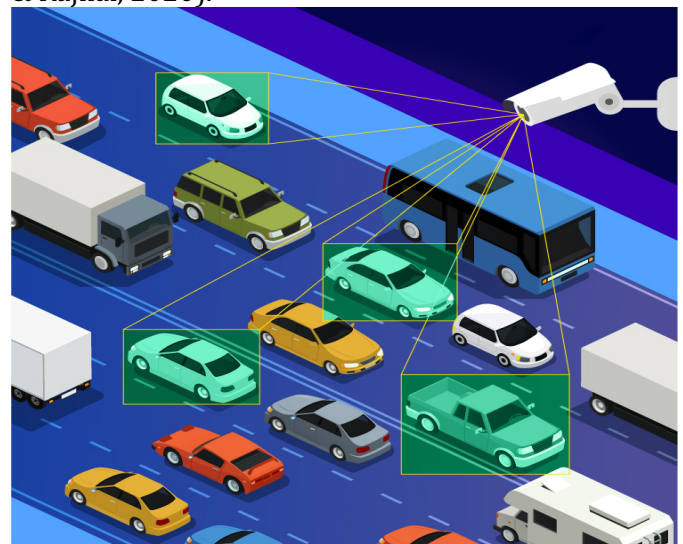


Figure 6 CCTV vehicle tracking.

The main function of ADAS is to warn drivers and reduce vehicular risks and accidents.



### Figure 7 an Ev with ADAS functionality

Cameras and sensors positioned all over the EVs help collect data in real-time for the AI algorithms to analyze full situational awareness and act as an extra pair of eyes for the EV drivers.

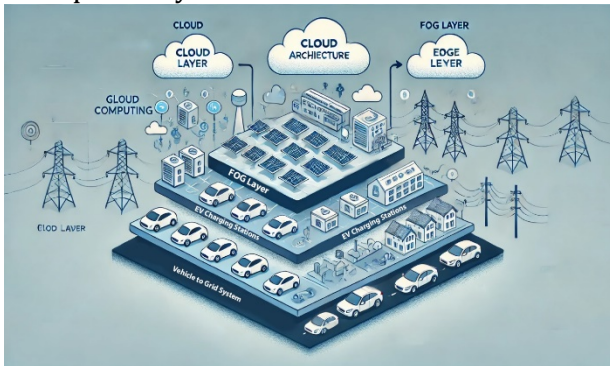


Figure 8 Fog Computing Diagram

### 4.5 Charging station deployment using Fog computing

Collection of real-time data being analyzed by AI helps to determine which areas would need more charging stations to reduce overcrowding at public charging stations due to AI algorithm's ability to effectively perform load forecasting. The SWITCH company has developed Urbiverse that used AI simulations to help determine potential EV charging stations. By analyzing data insight from Switch, companies can develop AI powered smart infrastructure to enhance accuracy, efficiency, sustainability and cost effectiveness of charging grid usage.

To process data and response at a faster pace between EVs and their charging grids, Fog computing bridges the gap between local data centers to cloud data centers where data is processed into information. They are decentralized and are essential for providing high efficiency rates and reducing processing delays as well as security and compliance issue. An advantage of the introduction of Fog computing in our charging grids is used to process analytics even before the data is sent to the cloud for larger analytics since they might not have the higher processing

capacities as cloud servers but in return gives data at a faster rate. Its decentralization makes processing information within the charging grid much faster as it is processed within the grids itself and not on remote servers. The reduction of latency among EVs and the charging grid infrastructure improves system performance and can be scaled to meet the demands of the grid as well as its ability to process and work with a wide range of devices, including sensors, cameras, and other IoT devices. This makes it an ideal solution for organizations with diverse hardware requirements.

With the help of Fog computing and the evolution of computer networks, demand-side management is becoming a vital task for managing the participation of users in power systems. Learning patterns of consumer behavior and power consumption can greatly contribute to demand response tasks on the consumer side. This will also help in analyzing consumers' behavior prediction.

### 5. CHALLENGES AND FUTURE DIRECTIONS

Despite having a wide range of benefits, wider adoption and optimizing EV charging infrastructure face numerous challenges. Some of the problems relate to the

1. high cost of EVs and their batteries,
2. longer times required for EV charging, and
3. small networks of charging stations.

All these require constant innovation and investments in AI technologies and infrastructure development. Future research would have to be directed toward enhancing AI algorithms for predictive maintenance, energy efficiency, and more advanced ADAS features.

### 6. CONCLUSION

With the advent of AI embedded into our everyday lives, and switching from our fossil fuel cars to EVs, our transport grids are becoming much smarter. AI can help overcome some of the challenges EV faces in predictive analysis, real-time data processing, and advanced driver assistance and with continuous improvements to be made in AI, smooth running of grids regarding EV charging and their optimization towards a greener, more sustainable world.

This paper presents the role AI is playing in enhancing EV charging grid infrastructure and the potential areas to make it much more efficient.

## REFERENCES

- Environmental and Energy Study Institute. (2025, June 17). Fossil fuels. Environmental and Energy Study Institute. <https://www.eesi.org/topics/fossil-fuels/description#:~:text=Fossil%20fuels%E2%80%944including%20coal%2C%20oil,were%20compressed%20and%20heated%20underground>
- European Commission. (2025, June 17). EU transport figures: Statistical pocketbook 2011. European Commission - Mobility and Transport. [https://transport.ec.europa.eu/facts-funding/studies-data/eu-transport-figures-statistical-pocketbook/statistical-pocketbook-2011\\_en](https://transport.ec.europa.eu/facts-funding/studies-data/eu-transport-figures-statistical-pocketbook/statistical-pocketbook-2011_en)
- International Energy Agency. (2020). Global EV outlook 2020. IEA. <https://www.iea.org/reports/global-ev-outlook-2020>
- Abnett, K. (2022, July). EU climate change policy CO<sub>2</sub> fossil fuels 2030 targets. World Economic Forum. <https://www.weforum.org/agenda/2022/07/eu-climate-change-policy-co2-fossil-fuels-2030-targets/>
- Rigas, E. S., Ramchurn, S. D., & Bassiliades, N. (2015). Managing electric vehicles in the smart grid using artificial intelligence: A survey. *IEEE Transactions on Intelligent Transportation Systems*, 16(4), 1619–1635. <https://doi.org/10.1109/TITS.2014.2376873>
- Sanguesa, J. A., Torres-Sanz, V., Garrido, P., Martinez, F. J., & Marquez-Barja, J. M. (2021). A review on electric vehicles: Technologies and challenges. *Smart Cities*, 4(1), 372–404. <https://doi.org/10.3390/smartcities4010022>
- Omitaomu, O. A., & Niu, H. (2021). Artificial intelligence techniques in smart grid: A survey. *Smart Cities*, 4(2), 548–568. <https://doi.org/10.3390/smartcities4020029>
- Lam, L. K., et al. (2011). Advanced metering infrastructure for electric vehicle charging. *Smart Grid and Renewable Energy*, 2(4), 312–323. <https://doi.org/10.4236/sgre.2011.24036>
- Bablo, J. (2016). Electric vehicle infrastructure standardization. *World Electric Vehicle Journal*, 8(2), 576–586.
- Maase, S., Dilrosun, X., Kooi, M., & van den Hoed, R. (2018). Performance of electric vehicle charging infrastructure: Development of an assessment platform based on charging data. *World Electric Vehicle Journal*, 9(2), 25. <https://doi.org/10.3390/wevj9020025>
- Altaleb, H., & Rajnai, Z. (2020). Electric vehicle charging infrastructure and charging technologies. *Haditechnika*, 54(4), 8–12. <https://doi.org/10.23713/ht.54.4.03>
- Gorbunova, A., & Anisimov, I. (2020). The analysis of the electric vehicle charging infrastructure in Tyumen city. *E3S Web of Conferences*, 164, 03016. <https://doi.org/10.1051/e3sconf/202016403016>
- Varma, S. M., Castro, F., & Maguluri, S. T. (2023, June). Electric vehicle fleet and charging infrastructure planning. *arXiv*. <https://arxiv.org/pdf/2306.10178>
- Kandil, S. M., Abdelfatah, A., & Azzouz, M. A. (2024). Optimization approaches for fast charging stations allocation and sizing: A review. *IEEE Access*, 12, 46741–46763. <https://doi.org/10.1109/ACCESS.2024.3381635>
- Arévalo, P., Ochoa-Correa, D., & Villa-Ávila, E. (2024). A systematic review on the integration of artificial intelligence into energy management systems for electric vehicles: Recent advances and future perspectives. *World Electric Vehicle Journal*, 15(8), 364. <https://doi.org/10.3390/wevj15080364>
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207–222. <https://doi.org/10.1111/1467-8551.00375>
- Zamanov, N. (2025, June 17). The role of AI in optimizing electric car charging. *Cyberswitching*. <https://cyberswitching.com/the-role-of-ai-in-optimizing-electric-car-charging/>
- Weerd, D., et al. (2013). Intention-aware routing to minimise delays at electric vehicle charging stations. *Eindhoven University of Technology*. <https://research.tue.nl/en/publications/intention-aware-routing-to-minimise-delays-at-electric-vehicle-ch-2>
- Bayram, I. S., Michailidis, G., Devetsikiotis, M., Granelli, F., & Bhattacharya, S. (2012). Smart vehicles in the smart grid: Challenges, trends, and application to the design of charging stations. In A. Chakraborty & M. D. Ilić (Eds.), *Control and optimization methods for electric smart grids* (pp. 133–145). Springer. [https://doi.org/10.1007/978-1-4614-1605-0\\_6](https://doi.org/10.1007/978-1-4614-1605-0_6)
- Mo, B., Wang, Q. Y., Moody, J., Shen, Y., & Zhao, J. (2021). Impacts of subjective evaluations and inertia from existing travel modes on adoption of autonomous mobility-on-demand. *Transportation Research Part C: Emerging Technologies*, 130, 103281. <https://doi.org/10.1016/j.trc.2021.103281>
- Antony, M. M., & Whenish, R. (2021). Advanced driver assistance systems (ADAS). In M. Kathiresh & R. Neelaveni (Eds.), *Automotive embedded systems: Key technologies, innovations, and applications* (pp. 165–181). Springer. [https://doi.org/10.1007/978-3-030-59897-6\\_9](https://doi.org/10.1007/978-3-030-59897-6_9)
- Switch.com. (2025, June 18). The power of AI for EV charging stations planning. <https://getswitch.io/blog/ev-charging-stations-planning>
- Scalecomputing. (2025, June 17). Edge computing vs. fog computing vs. cloud computing. <https://www.scalecomputing.com/resources/edge-computing-vs-fog-computing-vs-cloud-computing>