**Nghiên cứu và ứng dụng trí tuệ nhân tạo trong giao thông**

(Cập nhật đến ngày 12/8/2022)

 Hệ thống giao thông thông minh (Intelligent Transport Systems – ITS) không phải là điều gì quá mới mẻ. Ý tưởng về hệ thống này đã được khởi xướng từ những năm 60, 70 của thế kỷ trước tại Mỹ và các nước Châu Âu. Đến nay, mô hình này đã được áp dụng thành công tại nhiều thành phố lớn trên thế giới.

Hệ thống giao thông thông minh là công nghệ được sử dụng để giải quyết các vấn đề của giao thông đường bộ, trong đó bao gồm việc xử lý tai nạn và ùn tắc giao thông. Về cơ bản, ITS sẽ sử dụng kết nối thông tin giữa hệ thống giao thông, phương tiện đang di chuyển và con người nhằm hình thành một mạng lưới, qua đó tối ưu việc vận hành và tham gia vào quá trình điều tiết giao thông.

 Để hiểu rõ hơn Cục Thông tin KH&CN quốc gia xin giới thiệu một số bài nghiên cứu đã được xuất bản chính thức và các bài viết được chấp nhận đăng trên những cơ sở dữ liệu học thuật chính thống.



**1. IEEE**

1. Advancement of Flexible Robot Technologies for Endoluminal Surgeries
Joonhwan Kim;Michel de Mathelin;Koji Ikuta;Dong-Soo Kwon
Proceedings of the IEEE
Year: 2022 | Volume: 110, Issue: 7 | Journal Article | Publisher: IEEE
<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9779312>

2. Toward a Digital Twin for Arthroscopic Knee Surgery: A Systematic Review
Øystein Bjelland;Bismi Rasheed;Hans Georg Schaathun;Morten D. Pedersen;Martin Steinert;Alf Inge Hellevik;Robin T. Bye
IEEE Access
Year: 2022 | Volume: 10 | Journal Article | Publisher: IEEE
<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9762655>

3. Hybrid 6-DoF Magnetic Localization for Robotic Capsule Endoscopes Compatible With High-Grade Magnetic Field Navigation
Federico Bianchi;Antonino Masaracchia;Angelo Damone;Erfan Shojaei Barjuei;Calogero Maria Oddo;Paolo Dario;Gastone Ciuti
IEEE Access
Year: 2022 | Volume: 10 | Journal Article | Publisher: IEEE
<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9656131>

4. A New Automated Polyp Detection Network MP-FSSD in WCE and Colonoscopy Images Based Fusion Single Shot Multibox Detector and Transfer Learning
Meryem Souaidi;Mohamed El Ansari
IEEE Access
Year: 2022 | Volume: 10 | Journal Article | Publisher: IEEE
<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9765501>

5. Stiffness Assessment and Lump Detection in Minimally Invasive Surgery Using In-House Developed Smart Laparoscopic Forceps
Wael Othman;Kojo E. Vandyck;Carlos Abril;Juan S. Barajas-Gamboa;Juan P. Pantoja;Matthew Kroh;Mohammad A. Qasaimeh
IEEE Journal of Translational Engineering in Health and Medicine
Year: 2022 | Volume: 10 | Journal Article | Publisher: IEEE
<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9791427>

6. Triple-Element Back-to-Back Transducer With 3D Printed Housing for Intravascular Ultrasound Imaging: A Feasibility Study
Hee Su Lee;Jong Seob Jeong
IEEE Access
Year: 2022 | Volume: 10 | Journal Article | Publisher: IEEE
<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9684885>

7. Endoscopic Ultrasound Image Recognition Based on Data Mining and Deep Learning
Yufei Xie;Yu Cai;Yang Yu;Sen Wang;Wenlin Wang;Shasha Song
IEEE Access
Year: 2022 | Volume: 10 | Journal Article | Publisher: IEEE
<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9682712>

8. Robotic Autonomy for Magnetic Endoscope Biopsy
James W. Martin;Lavinia Barducci;Bruno Scaglioni;Joseph C. Norton;Conchubhair Winters;Venkataraman Subramanian;Alberto Arezzo;Keith L. Obstein;Pietro Valdastri
IEEE Transactions on Medical Robotics and Bionics
Year: 2022 | Early Access Article | Publisher: IEEE
<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9810843>

9. Label Augmentation to Improve Generalization of Deep Learning Semantic Segmentation of Laparoscopic Images
Leticia Monasterio-Exposito;Daniel Pizarro;Javier Macias-Guarasa
IEEE Access
Year: 2022 | Volume: 10 | Journal Article | Publisher: IEEE
<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9743467>

**2. Sciencedirect**

1. Environmental sustainability technologies in biodiversity, energy, transportation and water management using artificial intelligence: A systematic review
Sustainable Futures 15 March 2022 Volume 4 (Cover date: 2022) Article 100068
Emmanuel Kwame Nti, Samuel Jerry Cobbina, Michael Amoah Gyan
<https://www.sciencedirect.com/science/article/pii/S2666188822000053/pdfft?md5=6765457d6d298db0c0043c3b87dc4564&pid=1-s2.0-S2666188822000053-main.pdf>

2. Digital twins and artificial intelligence in transportation infrastructure: Classification, application, and future research directions
Computers and Electrical Engineering 19 April 2022 Volume 101 (Cover date: July 2022) Article 107983
Jingyi Wu, Xiao Wang, Zhihan Lv
<https://www.sciencedirect.com/science/article/pii/S0045790622002488/pdfft?md5=51efb065038b7f5f3a0380f1893753b2&pid=1-s2.0-S0045790622002488-main.pdf>

3. Artificial Intelligence as a factor of public transportations system development
Transportation Research Procedia 30 June 2022 Volume 63 (Cover date: 2022) Pages 2401-2408
Denis Ushakov, Egor Dudukalov, Khodor Shatila
<https://www.sciencedirect.com/science/article/pii/S2352146522005312/pdfft?md5=0991a86d41a52d8e835ed000eabad145&pid=1-s2.0-S2352146522005312-main.pdf>

4. Big data analytics in smart cities’ transportation infrastructure modernization
Transportation Research Procedia 30 June 2022 Volume 63 (Cover date: 2022) Pages 2385-2391
Denis Ushakov, Egor Dudukalov, Khodor Shatila
<https://www.sciencedirect.com/science/article/pii/S2352146522005294/pdfft?md5=5eadfa7ff7108b9c178d66b4399dc17b&pid=1-s2.0-S2352146522005294-main.pdf>

5. A deep learning based misbehavior classification scheme for intrusion detection in cooperative intelligent transportation systems
Digital Communications and Networks Available online 11 July 2022 In press, journal pre-proof
Tejasvi Alladi, Varun Kohli, F. Richard Yu
<https://www.sciencedirect.com/science/article/pii/S2352864822001407/pdfft?md5=afc09deebbec648df596c9439934b199&pid=1-s2.0-S2352864822001407-main.pdf>

6. A transportation choice model on the commuter railroads using inverse reinforcement learning
Asian Transport Studies 26 May 2022 Volume 8 (Cover date: 2022) Article 100072
Tomohiro Okubo, Naohiro Kitano, Akinori Morimoto
<https://www.sciencedirect.com/science/article/pii/S2185556022000189/pdfft?md5=381bf93ecb242846aad5a81078fedc0b&pid=1-s2.0-S2185556022000189-main.pdf>

7. A metaverse assessment model for sustainable transportation using ordinal priority approach and Aczel-Alsina norms
Technological Forecasting and Social Change 16 June 2022 Volume 182 (Cover date: September 2022) Article 121778
Dragan Pamucar, Muhammet Deveci, Mario Köppen
<https://www.sciencedirect.com/science/article/pii/S004016252200302X/pdfft?md5=d3aba422423222fbeafab9f180c216c1&pid=1-s2.0-S004016252200302X-main.pdf>

8. Predictive risk modeling for major transportation projects using historical data
Automation in Construction 4 May 2022 Volume 139 (Cover date: July 2022) Article 104301
Abdolmajid Erfani, Qingbin Cui
<https://www.sciencedirect.com/science/article/pii/S0926580522001741/pdfft?md5=65a26497b82b810d16a3d83e83e89ff1&pid=1-s2.0-S0926580522001741-main.pdf>

9. The Internet of Things impact on smart public transportation
Transportation Research Procedia 30 June 2022 Volume 63 (Cover date: 2022) Pages 2392-2400
Denis Ushakov, Egor Dudukalov, Khodor Shatila
<https://www.sciencedirect.com/science/article/pii/S2352146522005300/pdfft?md5=312c82733bc217a001623e198bcda1e3&pid=1-s2.0-S2352146522005300-main.pdf>

10. Towards a sustainable monitoring: A self-powered smart transportation infrastructure skin
Nano Energy 14 April 2022 Volume 98 (Cover date: July 2022) Article 107245
Qiang Zheng, Yue Hou, Zhong Lin Wang
<https://www.sciencedirect.com/science/article/pii/S2211285522003251/pdfft?md5=c3987ba645ff22fca903ad82673fb975&pid=1-s2.0-S2211285522003251-main.pdf>

11. Applying Artificial Intelligence and Deep Belief Network to predict traffic congestion evacuation performance in smart cities
Applied Soft Computing 28 March 2022 Volume 121 (Cover date: May 2022) Article 108692
Gen Chen, Jiawan Zhang
<https://www.sciencedirect.com/science/article/pii/S1568494622001569/pdfft?md5=8064242f92441da3f26a506f293d49b9&pid=1-s2.0-S1568494622001569-main.pdf>

12. A proof of concept for providing traffic data by AI based computer vision as a basis for smarter industrial areas
Procedia Computer Science 27 April 2022 Volume 201 (Cover date: 2022) Pages 239-246
Abdullah Shams, André Schekelmann, Wilhelm Mülder
<https://www.sciencedirect.com/science/article/pii/S187705092200446X/pdfft?md5=70cd854129d38c5234eec4a622c4b4ed&pid=1-s2.0-S187705092200446X-main.pdf>

13. Environmental sustainability technologies in biodiversity, energy, transportation and water management using artificial intelligence: A systematic review
Sustainable Futures 15 March 2022 Volume 4 (Cover date: 2022) Article 100068
Emmanuel Kwame Nti, Samuel Jerry Cobbina, Michael Amoah Gyan
<https://www.sciencedirect.com/science/article/pii/S2666188822000053/pdfft?md5=6765457d6d298db0c0043c3b87dc4564&pid=1-s2.0-S2666188822000053-main.pdf>

14. Digital twins and artificial intelligence in transportation infrastructure: Classification, application, and future research directions
Computers and Electrical Engineering 19 April 2022 Volume 101 (Cover date: July 2022) Article 107983
Jingyi Wu, Xiao Wang, Zhihan Lv
<https://www.sciencedirect.com/science/article/pii/S0045790622002488/pdfft?md5=51efb065038b7f5f3a0380f1893753b2&pid=1-s2.0-S0045790622002488-main.pdf>

15. Artificial Intelligence as a factor of public transportations system development
Transportation Research Procedia 30 June 2022 Volume 63 (Cover date: 2022) Pages 2401-2408
Denis Ushakov, Egor Dudukalov, Khodor Shatila
<https://www.sciencedirect.com/science/article/pii/S2352146522005312/pdfft?md5=0991a86d41a52d8e835ed000eabad145&pid=1-s2.0-S2352146522005312-main.pdf>

16. Big data analytics in smart cities’ transportation infrastructure modernization
Transportation Research Procedia 30 June 2022 Volume 63 (Cover date: 2022) Pages 2385-2391
Denis Ushakov, Egor Dudukalov, Khodor Shatila
<https://www.sciencedirect.com/science/article/pii/S2352146522005294/pdfft?md5=5eadfa7ff7108b9c178d66b4399dc17b&pid=1-s2.0-S2352146522005294-main.pdf>

17. A deep learning based misbehavior classification scheme for intrusion detection in cooperative intelligent transportation systems
Digital Communications and Networks Available online 11 July 2022 In press, journal pre-proof
Tejasvi Alladi, Varun Kohli, F. Richard Yu
<https://www.sciencedirect.com/science/article/pii/S2352864822001407/pdfft?md5=afc09deebbec648df596c9439934b199&pid=1-s2.0-S2352864822001407-main.pdf>

18. A transportation choice model on the commuter railroads using inverse reinforcement learning
Asian Transport Studies 26 May 2022 Volume 8 (Cover date: 2022)Article 100072
Tomohiro Okubo, Naohiro Kitano, Akinori Morimoto
<https://www.sciencedirect.com/science/article/pii/S004016252200302X/pdfft?md5=d3aba422423222fbeafab9f180c216c1&pid=1-s2.0-S004016252200302X-main.pdf>

19. A metaverse assessment model for sustainable transportation using ordinal priority approach and Aczel-Alsina norms
Technological Forecasting and Social Change 16 June 2022 Volume 182 (Cover date: September 2022) Article 121778
Dragan Pamucar, Muhammet Deveci, Mario Köppen
<https://www.sciencedirect.com/science/article/pii/S004016252200302X/pdfft?md5=d3aba422423222fbeafab9f180c216c1&pid=1-s2.0-S004016252200302X-main.pdf>

20. Predictive risk modeling for major transportation projects using historical data
Automation in Construction 4 May 2022 Volume 139 (Cover date: July 2022) Article 104301
Abdolmajid Erfani, Qingbin Cui
<https://www.sciencedirect.com/science/article/pii/S0926580522001741/pdfft?md5=65a26497b82b810d16a3d83e83e89ff1&pid=1-s2.0-S0926580522001741-main.pdf>

21. The Internet of Things impact on smart public transportation
Transportation Research Procedia 30 June 2022 Volume 63 (Cover date: 2022)Pages 2392-2400
Denis Ushakov, Egor Dudukalov, Khodor Shatila
<https://www.sciencedirect.com/science/article/pii/S2352146522005300/pdfft?md5=312c82733bc217a001623e198bcda1e3&pid=1-s2.0-S2352146522005300-main.pdf>

22. Towards a sustainable monitoring: A self-powered smart transportation infrastructure skin
Nano Energy 14 April 2022 Volume 98 (Cover date: July 2022) Article 107245
Qiang Zheng, Yue Hou, Zhong Lin Wang
<https://www.sciencedirect.com/science/article/pii/S2211285522003251/pdfft?md5=c3987ba645ff22fca903ad82673fb975&pid=1-s2.0-S2211285522003251-main.pdf>

**3. Spinger**

1. The internet-of-vehicle traffic condition system developed by artificial intelligence of things
Hsin-Te Wu in The Journal of Supercomputing (2022)
[https://link.springer.com/content/pdf/10.1007%2Fs11227-021-03969-0.pdf](https://link.springer.com/content/pdf/10.1007/s11227-021-03969-0.pdf)

2. A Deep Learning Approach to Detection and Mitigation of Distributed Denial of Service Attacks in High Availability Intelligent Transport Systems
Nitish Mahajan, Amita Chauhan, Harish Kumar… in Mobile Networks and Applications (2022)
[https://link.springer.com/content/pdf/10.1007%2Fs11036-022-01973-z.pdf](https://link.springer.com/content/pdf/10.1007/s11036-022-01973-z.pdf)

3. The German Act on Autonomous Driving: Why Ethics Still Matters
Alexander Kriebitz, Raphael Max, Christoph Lütge in Philosophy & Technology (2022)
[https://link.springer.com/content/pdf/10.1007%2Fs13347-022-00526-2.pdf](https://link.springer.com/content/pdf/10.1007/s13347-022-00526-2.pdf)

4. Contestations in urban mobility: rights, risks, and responsibilities for Urban AI
Nitin Sawhney in AI & SOCIETY (2022)
[https://link.springer.com/content/pdf/10.1007%2Fs00146-022-01502-2.pdf](https://link.springer.com/content/pdf/10.1007/s00146-022-01502-2.pdf)

5. Social implications of autonomous vehicles: a focus on time
Cian McCarroll, Federico Cugurullo in AI & SOCIETY (2022)
[https://link.springer.com/content/pdf/10.1007%2Fs00146-021-01334-6.pdf](https://link.springer.com/content/pdf/10.1007/s00146-021-01334-6.pdf)

6. A framework for the generation of complex scenario instances in the Urban Transit Routing Problem
Roberto Díaz Urra, Nicolás Gálvez Ramírez… in Annals of Mathematics and Artificial Intelligence (2022)
[https://link.springer.com/content/pdf/10.1007%2Fs10472-022-09797-z.pdf](https://link.springer.com/content/pdf/10.1007/s10472-022-09797-z.pdf)

7. Network design for line-based autonomous bus services
Jonas Hatzenbühler, Oded Cats, Erik Jenelius in Transportation (2022)
[https://link.springer.com/content/pdf/10.1007%2Fs11116-021-10183-7.pdf](https://link.springer.com/content/pdf/10.1007/s11116-021-10183-7.pdf)

8. The public transport navigation system
Michael Burch, Yves Staudt, Sina Frommer, Janis Uttenweiler… in Journal of Visualization (2022)
[https://link.springer.com/content/pdf/10.1007%2Fs12650-021-00822-7.pdf](https://link.springer.com/content/pdf/10.1007/s12650-021-00822-7.pdf)

9. Improve Safety and Security of Intelligent Railway Transportation System Based on Balise Using Machine Learning Algorithm and Fuzzy System
Abolfazl Falahati, Ebrahim Shafiee in International Journal of Intelligent Transportation Systems Research (2022)
[https://link.springer.com/content/pdf/10.1007%2Fs13177-021-00274-1.pdf](https://link.springer.com/content/pdf/10.1007/s13177-021-00274-1.pdf)

10. Reinforcement learning for traffic light control with emphasis on emergency vehicles
Mahboubeh Shamsi, Abdolreza Rasouli Kenari… in The Journal of Supercomputing (2022)
[https://link.springer.com/content/pdf/10.1007%2Fs11227-021-04068-w.pdf](https://link.springer.com/content/pdf/10.1007/s11227-021-04068-w.pdf)

11. Intelligent fleet management of autonomous vehicles for city logistics
Elias Xidias, Paraskevi Zacharia, Andreas Nearchou in Applied Intelligence (2022)
[https://link.springer.com/content/pdf/10.1007%2Fs10489-022-03535-y.pdf](https://link.springer.com/content/pdf/10.1007/s10489-022-03535-y.pdf)

#  **Các công bố về Trí tuệ nhân tạo trước thời gian trên:**

Cập nhật các công bố về Trí tuệ nhân tạo từ ngày 01/7 đến ngày 08/7/2022

[https://www.vista.gov.vn/news/khoa-hoc-doi-song/ung-dung-tri-tue-nhan-tao- trong-y-hoc-cap-nhat-den-ngay-8-7-2022-5212.html](https://www.vista.gov.vn/news/khoa-hoc-doi-song/ung-dung-tri-tue-nhan-tao-%20trong-y-hoc-cap-nhat-den-ngay-8-7-2022-5212.html)

Cập nhật các công bố về Trí tuệ nhân tạo từ ngày 09/7 đến ngày 15/7/2022

[https://vista.gov.vn/news/khoa-hoc-doi-song/ung-dung-tri-tue-nhan-tao-trong- nganh-giao-duc-cap-nhat-tu-2-7-ngay-den-ngay-15-7-2022-5239.html](https://vista.gov.vn/news/khoa-hoc-doi-song/ung-dung-tri-tue-nhan-tao-trong-%20%20nganh-giao-duc-cap-nhat-tu-2-7-ngay-den-ngay-15-7-2022-5239.html)

Cập nhật các công bố về Trí tuệ nhân tạo từ ngày 16/7 đến ngày 22/7/2022

<https://vista.gov.vn/news/khoa-hoc-doi-song/tri-tue-nhan-tao-ung-dung-trong-san-xuat-cap-nhat-tu-16-7-ngay-den-ngay-22-7-2022-5262.html>

Cập nhật các công bố về Trí tuệ nhân tạo từ ngày 23/7 đến ngày 29/7/2022

<https://vista.gov.vn/news/khoa-hoc-doi-song/tri-tue-nhan-tao-co-the-phat-hien-ung-thu-som-cap-nhat-tu-23-7-ngay-den-ngay-29-7-2022-5296.html>

Cập nhật các công bố về Trí tuệ nhân tạo từ ngày 30/7 đến ngày 05/8/2022

<https://vista.gov.vn/news/khoa-hoc-doi-song/noi-soi-co-tri-tue-nhan-tao-ho-tro-cap-nhat-den-ngay-5-8-2022-5323.html>