

# Revisión de artículos

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¿Cómo revisar artículos?

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## ① Introducción

## ② Secciones

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Introducción

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- ¿Por qué es importante leer artículos científicos?
  - Es la principal forma de comunicar los últimos hallazgos de un área.
  - Para mantenerse actualizado.
  - Para encontrar nuestra propia investigación.
- ¿Por qué los artículos son tan difíciles de leer?
  - Son reportes de proyectos de investigación complejos.
- Por esta misma razón, los artículos se dividen en secciones. Algunas son relevantes y otras no.

- Revisa el año de la publicación para determinar si es relevante a tu investigación.
- Revisa los autores y las instituciones a las que están afiliados.
- Revisa la revista de la que procede el artículo.

# ¿Cómo están estructurados los artículos?

- Título.
- Resumen.
- Introducción.
- Métodos (Materiales y métodos)
- Resultados.
- Conclusiones.

- Los títulos son largos por una razón: porque el título tiene que indicar a los académicos que es lo que se ha hecho, porqué se ha hecho, cómo lo han hecho y para quienes se ha hecho.
- La longitud promedio de un título es de 19 palabras.

# Next Road Rerouting: A Multi-Agent System for Mitigating Unexpected Urban Traffic Congestion

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# A cellular automata approach for modelling pedestrian-vehicle mixed traffic flow in urban city

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- También detalla el artículo completo.
- Es una versión en miniatura sin los detalles.
- Tiene las mismas secciones: antecedentes, métodos, resultados y conclusiones.

*Abstract*—During peak hours in urban areas, unpredictable traffic congestion caused by en-route events (e.g. vehicle crashes) increases drivers' travel time and, more seriously, decreases their travel time reliability. In this paper, an original and highly practical vehicle re-routing system called Next Road Rerouting (NRR) is proposed to aid drivers in making the most appropriate next road choice so as to avoid unexpected congestions. In particular, this heuristic rerouting decision is made upon a cost function which takes into account the driver's destination and local traffic conditions. In addition, the newly designed Multi-Agent System (MAS) architecture of NRR allows the positive rerouting impacts on local traffic to be disseminated to a larger area through the natural traffic flow propagation within connected local areas. The simulation results based on both synthetic and realistic urban scenarios demonstrate that, compared to the existing solutions, NRR can achieve a lower average travel time while guaranteeing a higher travel time reliability in the face of unexpected congestion. The impacts of NRR on the travel time of both rerouted and non-rerouted vehicles are also assessed and the corresponding results reveal its higher practicability.

*Index Terms* – Road Traffic Congestion, Unexpected En-route Events, Multi Agent System, Vehicle Re-routing

## A B S T R A C T

In urban streets, the intrusion of pedestrians into the motorway will pose a considerable challenge. However, modelling mixed pedestrian-vehicle traffic scenes is difficult. Pedestrians and vehicles have different motion characteristics and spatial dimensions, so it is hard to carry out unified modelling, and there are few related studies. This paper combines the multi-grid cellular automata model to explore these scenes to connect the vehicle and pedestrian models. An Improved Kerner-Klenov-Wolf (IKKW) model and a pedestrian motion model considering Time-To-Collision (TTC) are proposed, in which the spatial motion of a vehicle and a pedestrian is uniformly updated horizontally and longitudinally. The preliminary analysis of the model shows that it has high simulation accuracy. Applying the model to the simulation of real-life situations, research results reveal the impact of pedestrian intrusion behavior on traffic and the changes in vehicles' speed and flow rate caused by pedestrian intrusion behavior. The fundamental diagram of pedestrian-vehicle heterogeneous traffic shows significant differences, reflecting the impact of pedestrian intrusion on the state of traffic flow, and exposes six phase regions of pedestrian-vehicle mixed traffic flow. Moreover, this paper analyzes the conflicts between pedestrians and vehicles under different speed limits and sidewalk widths, showing that lower speeds and wider sidewalks can effectively reduce the frequency of pedestrian-vehicle conflicts. The peak conflicts' frequency when the vehicles' speed limit is 60.48 km/h exceeds three times that when the speed limit is 30.24 km/h. The cellular automata model proposed in this paper provides a good direction and idea for studying mixed traffic flow and has high scalability.

- Estructura:
  - ¿Qué es conocido?
  - ¿Qué no es conocido?
  - ¿Cuál es la hipótesis? Si la hay, se encuentra en la última sentencia del último párrafo de la introducción.
- Estrategia: Revisar el primer y último párrafo.
  - El primer párrafo nos muestra los antecedentes generales.
  - El último párrafo nos muestra la hipótesis.

aforementioned widely used practical solutions and state-of-the-art theoretical approaches. As an extension of our previous work [21], the contributions and substantial improvements of this paper are outlined as follows:

- **Realistic implementation**

*Reduced computation cost.* Relative to solutions which immediately calculate complete route at once, as in , NRR can significantly reduce the computation cost, thanks to two-step rerouting. NRR works by: (1) calculating the optimal next roads for the set of concerned vehicles to bypass the blocked road, and (2) using a VNS to update the new route to complete the rest of the journey. As the optimal next-road computation is much faster than recalculating the entire route, this two-step re-routing approach fits perfectly

The above literature review shows that studying pedestrian-vehicle mixed traffic is a hot topic in traffic research. However, most existing research focuses on pedestrian-vehicle conflicts at crosswalks or right-turn lanes at intersections, and there are fewer studies on conflicts in mixed traffic. The motor vehicle lanes are generally narrow in campus areas or city streets, and sidewalks are generally set up beside the motor vehicle lanes. In the case of high pedestrians' density, pedestrians may invade the motor lane, and there is little research on mixed traffic in this scenario. This paper models pedestrian-vehicle mixed traffic via the cellular automata model and researches traffic conflict and congestion in this scenario.

The remainder of the paper is organized as follows. In [Section 2](#), we introduce this paper's research scenario and mod-

- Es la sección más larga.
- Es para los revisores o para otros académicos que quiere evaluar o reproducir la investigación.
- Normalmente se salta.

- Presenta los datos puros sin interpretación.
- Éstos se presentan a través de tablas o gráficos.
- Normalmente se salta. Sin embargo, una buena estrategia es revisar los nombres de las subsecciones, ya que son pequeños resúmenes.



- Resumen de los hallazgos realizados e implicaciones de los mismos.
- En esta sección es dónde nos debemos detener, leer cuidadosamente y tomar notas.

- Asegúrate de entender el título.
- Leer cuidadosamente el resumen para determinar la relevancia.
- Por último, revisar los resultados y conclusiones.
- Extre: Seleccionar, al menos, dos referencias que puedan ser útiles para el estudio que estamos revisando.

- How To Read A Paper Quickly and Effectively - Easy Research Reading Technique.
- How To Read A Research Paper?
- How to Read a Journal Article in 10 Minutes or Less.