A Hyperbola Pair Based Lane Detection System For Vehicle

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A Hyperbola-Pair Based Lane Detection System for Vehicle Guidance Abstract —Developing on-board automotive driver assistance systems aiming to alert drivers about driving environments, and possible collision with other vehicles has attracted a lot of

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(PDF) A Hyperbola-pair based lane detection system for ...
The lanes are detected using Hough transform and fitted to a hyperbola model. The proposed lane detection algorithm can be applied on both painted and unpainted road as well as curved and straight road. Finally, a critical overview of the methods was discussed, the assessment of their potential for future deployment were highlighted.

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A Hyperbola-Pair Based Lane Detection System for Vehicle ...
Khalifa OO, Khan IM, Assidiq AAM, Abdulla A-H, Khan S (2010) A hyperbola-pair based lane detection system for vehicle guidance. Lecture notes in engineering and computer science: proceedings of the world congress on engineering and computer science (WCECS 2010), San Francisco, USA, 20–22 Oct 2010, pp 585–588 Google Scholar

A Hyperbola-Pair Based Road Detection System for ...
In this paper, we propose a real-time lane detection algorithm based on a hyperbola-pair lane boundary model. In stead of modeling each road boundary separately, we propose a model to describe the road boundary as two parallel hyperbolas on ground plane. By fitting points on pair road boundaries into this model, our method is able to make full use of road boundaries with existence of partial occlusion.

A Real-time Lane Detection Algorithm Based on a Hyperbola ...
A multi-step curved lane detection algorithm based on hyperbola-pair model. Abstract: In this paper, we propose a multi-step algorithm based on a hyperbola-pair model for lane detection. We represent the lane markings on the road by a modified hyperbola-pair model, which contains two parts. The first one is a parallel straight line model, which is achieved by Hough transform.

A multi-step curved lane detection algorithm based on ...
By fitting points on pair road boundaries into the hyperbola model, and completes the lane boundary reconstruction. Some experimental studies are conducted, and the results show that the accuracy of the algorithm has reached 93.4 % and the processing speed of each image needs 77.4 ms.

A Lane Detection Algorithm Based on Hyperbola Model ...
The derivation of the equation of a hyperbola is based on applying the distance formula, but is again beyond the scope of this text. The standard form of an equation of a hyperbola centered at the origin with vertices [latex]\left(\pm a,0\right)[/latex] and co-vertices [latex]\left(0\pm b\right)[/latex] is [latex]\dfrac{{x}^{2}}{{a}^{2}}-\dfrac ...

Equations of Hyperbolas | College Algebra
In mathematics, a hyperbola (plural hyperbolas or hyperbolae) is a type of smooth curve lying in a plane, defined by its geometric properties or by equations for which it is the solution set.A hyperbola has two pieces, called connected components or branches, that are mirror images of each other and resemble two infinite bows.The hyperbola is one of the three kinds of conic section, formed by ...

Hyperbola - Wikipedia
We represent the lane markings on the road by a modified hyperbola-pair model, which contains two parts. The first one is a parallel straight line model, which is achieved by Hough transform. The second one is a hyperbola-pair line model, which is achieved by a searching strategy with the parameters got in the first stage as initial parameters.

A multi-step curved lane detection algorithm based on ...
The lanes are extracted using Hough transform through a pair of hyperbolas which are fitted to the edges of the lanes. The proposed lane detection system can be applied on both painted and...

(PDF) Vision Based Road Lane Detection System for Vehicles ...
In this paper, we propose a real-time lane detection algorithm based on a hyperbola-pair lane boundary model. In stead of modeling each road boundary separately, we propose a model to describe the road boundary as two parallel hyperbolas on ground plane.

A Real-time Lane Detection Algorithm Based on a Hyperbola ...
If LL’ and NN’ are the latus rectum of the hyperbola tehn these lines are perpendicular to the transverse axis AA’ passing through the foci S and S’ respectively. Then L = (ae, b 2 /a) , L’ = (ae, -b 2 /a) , N = (-ae, b 2 /a) , N’ = (-ae, -b 2 /a). Hence, the length of latus rectum = LL’ = 2b 2 /a = NN’.

Concepts of Hyperbola - Study Material for IIT JEE ...
A hyperbola is a pair of symmetrical open curves. It is what we get when we slice a pair of vertical joined cones with a vertical plane. How do we create a hyperbola? Take 2 fixed points A and B and let them be 4a units apart. Now, take half of that distance (i.e. 2a units). Now, move along a curve such that from any point on the curve,

6. The Hyperbola - intmath.com
We model the road boundaries in the image plane as a pair of hyperbolas, see Fig. 4: (2-9) u-u VP = a (v-v VL) + b / (v-v VL) where (u, v) are image coordinates of the road boundaries, a is the inverse tangent of an asymptote of the hyperbola, whose sign is different for left and right road boundary segment (positive or negative).

An extended hyperbola model for road tracking for video ...
The major difference between parabola and hyperbola based on their eccentricity. For parabola, eccentricity is equal to 1 and for hyperbola, eccentricity is greater than 1. Although both are part of conic sections, there are other differences too, which separates parabola and hyperbola from each other.See the graph below to understand the differences.