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Research Article

The Application of Real-Time Video Processing Technology in English Culture Teaching

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In order to improve the effect of English culture teaching, this paper combines the real-time video image processing technology to construct an English culture teaching system. Moreover, this paper selects the image processing based on octree structure with the advantages of full 3D modeling and being updatable, flexible, and compact by comparison. At the same time, this paper analyzes the existing Gaussian-based inverse sensor model that can be used for monocular vision and improves the measurement inverse sensor model for stereo vision published by Andert. In addition, this paper deeply analyzes the influence of key parameters of the improved measurement inverse sensor model and realizes the real-time octree occupancy grid map of the improved measurement inverse sensor model. Finally, after improving the real-time video processing technology, this paper evaluates the application effect of the method proposed in this paper in English culture teaching. The experimental research results show that the real-time video processing technology proposed in this paper has a good effect in English culture teaching, and it can be applied to English culture teaching to improve the effect of English culture teaching.

1. Introduction

Language is not only the carrier of culture but also a part of culture. For example, many people immigrate to a new country and still retain their old habits, speaking their first language. This is very common in the US, even though they are very comfortable with the new locale. The reason for this is the desire of these migrants to preserve their cultural heritage, which includes not only their traditions and customs but also their own language. This is also seen in many Jewish communities. In particular, it is manifested in some elderly people who often speak Yiddish. The reason for this is that it is seen as an integral part of Jewish culture. Language is a special part of culture [1].

It develops with the change and development of human society. From another perspective [2], without language, culture will not exist. Language is the formation and development of culture. The formation and development of culture promotes the development of language. Culture emerges with the appearance of language. There are many similarities [3]. However, humans created language, while animals did not. Primitive humans have cultural categories, like religion, morality, customs, and so on, while animals cannot [4]. So, we say that language teaching is essentially cultural teaching. In the actual teaching process, it seems that as long as we listen and speak, with training in reading and writing, we can understand English and be able to communicate with others in English. But in fact, people often misunderstand each other because they do not understand the cultural background of the language [5].

There is an inseparable "natural" relationship between language and cultural practitioners. Language is the carrier of culture, and culture is the connotation of language [6]. Although language and culture are inseparable and cultural factors are ubiquitous in language teaching, in actual teaching, it may be influenced by traditions and habits, ignoring cultural factors in language use or exaggerating literary teaching. In foreign language teaching, cultural teaching takes over [7]. It can be seen that the relationship between cultural teaching and language teaching deserves a thorough discussion and research from theory to practice. A large number of research results and practice have proved that the relationship between them has the characteristics of synchronization, complementarity, and compatibility [8].

A key issue in the implementation of cultural introduction and cultural teaching in foreign language teaching is the quality of language teachers. The language teaching activities are mainly completed by teaching and students. In such a large environment of cultivating students' cross-cultural communication ability, teachers must change their teaching concepts in teaching and change the traditional teaching method of teachers' teaching and students' passive acceptance of teaching methods. Teachers guide and help students to collect information and consciously absorb the nutrition of Chinese and Western cultures [9]. Therefore, the traditional status of teachers, "teaching teaching and solving doubts" has also been given a new connotation. Teachers have changed from "sages at the front desk" to "guiding guides." At the same time, in order to strengthen teachers' understanding of the dual culture, the requirements for teachers have also been improved [10]. At the same time, it is also necessary to have the ability to accurately express their own culture in a foreign language. Only with these two abilities can you be competent in teaching, play an inspiring and guiding role in the teaching process, fully mobilize students' enthusiasm for learning, effectively organize classroom teaching centered on learning, discover problems, solve problems, and improve students' humanistic quality. Only with full-scale, two-way interaction can the language learning process become a process of cultural learning and communication and a live language practice process. The introduction of cross-literature, mathematics, and inclusiveness in English teaching will help students to open up their horizons, develop their ideas, and improve their comprehensive quality [11].

Intercultural communication is the process of communication and interaction between people from different cultural backgrounds. In the exchange, the two sides understand each other and express their own ideas and cultures, which is also a process of equal interaction between local culture and foreign culture. To build a bridge of cross-cultural communication, learners must have bicultural and bilingual abilities [12]. In the research of cultural teaching in English teaching in colleges and universities, many scholars have proposed the teaching mode of cross-cultural communication ability from the perspective of foreign language teaching [13]. All of these teaching modes take the cultivation of cultural awareness and the inclusiveness of different cultures as the main content of cultivating intercultural communication ability [14]. It is necessary to have a solid mother tongue culture foundation; especially in the era of foreign culture penetration, only when students have a profound cultural background in their own language can they have a clear sense of identity with their mother tongue culture and be tolerant of different cultures. Incorporating it into the existing cultural teaching of students, mother tongue culture has become an indispensable and important factor in college English teaching because college English teaching has corresponding topics or scenarios; if college English teaching cannot find the similarities and differences between the two cultures, you cannot effectively acquire cross-cultural skills. The two-way flow of language and culture requires that our language learning cannot move forward alone [15].

In order to improve the effect of English culture teaching, this paper combines the real-time video image processing technology to construct an English culture teaching system to improve the cultural communication in the English teaching process.

2. Real-Time Video Processing Algorithms

2.1. Design and Implementation of Occupancy Grid Map Generation Algorithm Based on Octree. The octree hierarchical data structure represents a three-dimensional environment. The octree data structure shown in Figure 1 consists of nodes.

By applying an ideal sensor model and update equations, sensor measurements integrate the finest resolution or leaf nodes into the teaching image. When the measurement unit is updated to be occupied, the update equation calculates the probability of leaf nodes as

$$\left(\frac{p\left(m_i \mid z_{1:t}\right)}{1-p\left(m_i \mid z_{1:t}\right)}\right)=\left(\frac{p\left(m_i \mid z_t\right)}{1-p\left(m_i \mid z_t\right)}\right)\left(\frac{p\left(m_i \mid z_{1:t-1}\right)}{1-p\left(m_i \mid z_{1:t-1}\right)}\right)\left(\frac{1-p\left(m_i\right)}{p\left(m_i\right)}\right),$$
$$L\left(m_i \mid z_{1:t}\right)=L\left(m_i \mid z_t\right)+L\left(m_i \mid z_{1:t-1}\right). \tag{1}$$

At the same time,

$$L\left(m_i\right)=\log\left[\frac{p\left(m_i\right)}{1-p\left(m_i\right)}\right]. \tag{2}$$

Among them,

$$L\left(m_1\right)=\log(1)=0. \tag{3}$$

In the ideal case, the system computes the posterior distribution over the teaching image and constructs the pose estimate x from start to time t to get

$$p\left(m_i \mid z_{1:t}, x_{1:t}\right). \tag{4}$$

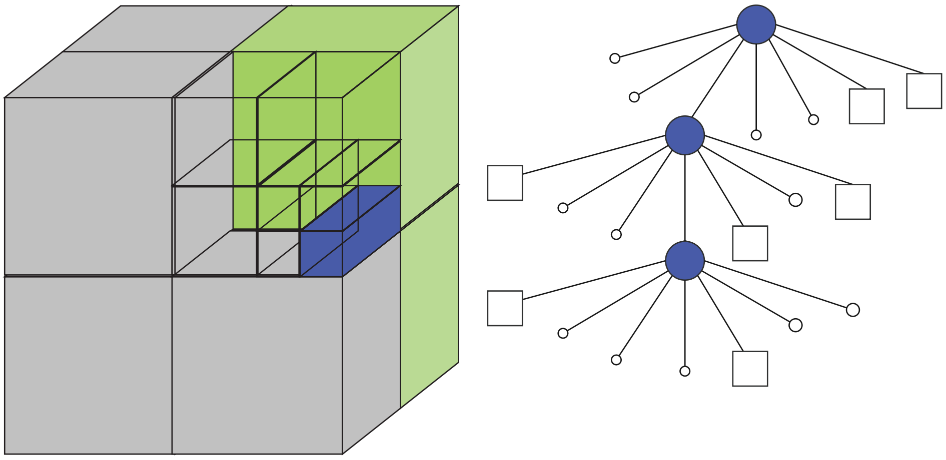
For convenience, we assume that all sensor measurements z are converted to world coordinates and that merging poses to measurements z eliminates x.

$$p\left(m \mid z_{1:t}\right). \tag{5}$$

In general, the occupancy rate can be used to calculate the probability of a cell being idle. For convenience, as in formula (6), the problem of calculating the posterior distribution on the teaching image is a dimensional problem.

$$p\left(m_i \mid z_{1:t}\right). \tag{6}$$

It is assumed that the instructional image units are statistically independent of each other. In other words, adjacent cells are not allowed to have dependencies, but the posterior teaching image is taken as the product of its edges, as shown in the following formula.



(a) (b)

Figure 1: Visual representation of octree voxels. (a) Voxel presentation. (b) Tree presentation.

$$p(m_1, m_2 \cdots, m_N \mid z_{1:t}) = \prod_i^N p(m_i \mid z_{1:t}). \tag{7}$$

Binary Bayesian filters are well suited for this problem when considering the static environment of the binary state and the conditional independence of measurements over time for a given m_i:

$$\begin{aligned} p(m_i \mid z_{1:t}) &= \frac{p(z_t \mid m_i, z_{1:t-1})\, p(m_i \mid z_{1:t-1})}{p(z_t \mid z_{1:t-1})} \\ &= \frac{p(z_t \mid m_i)\, p(m_i \mid z_{1:t-1})}{p(z_t \mid z_{1:t-1})}. \end{aligned} \tag{8}$$

Bayes' rule is applied to $(z_t \mid m_i)$:

$$p(z_t \mid m_i) = \frac{p(m_i \mid z_t)\, p(z_t)\, p(m_i \mid z_{1:t1})}{p(m_i)\, p(z_t \mid z_{1:t1})}. \tag{9}$$

Likewise, the complementary probability of a cell being idle is

$$p(\overline{m_i} \mid z_{1:t}) = \frac{p(\overline{m_i} \mid z_t)\, p(z_t)\, p(\overline{m_i} \mid z_{1:t-1})}{p(\overline{m_i})\, p(z_t \mid z_{1:t-1})}. \tag{10}$$

To eliminate some tedious calculations, equation (9) can be divided by its supplementary equation (10) to get the following formula:

$$\frac{p(m_i \mid z_{1:t})}{p(\overline{m_i} \mid z_{1:t})} = \frac{p(m_i \mid z_t)\, p(m_i \mid z_{1:t-1})\, p(\overline{m_i})}{p(\overline{m_i} \mid z_t)\, p(\overline{m_i} \mid z_{1:t-1})\, p(m_i)}. \tag{11}$$

To avoid probabilistic numerical instabilities near 0 or 1, the log-difference ratio can be used to express the occupancy, as shown in formula (12). The probability can be easily recovered as shown in formula (13).

$$L(m_i \mid z_{1:t}) = \log\left(\frac{p(m_i \mid z_{1:t})}{1 - p(m_i \mid z_{1:t})}\right), \tag{12}$$

$$p(m_i \mid z_{1:t}) = 1 - \left(\frac{1}{1 + e^{L(m_i \mid z_{1:t})}}\right). \tag{13}$$

Using the log-difference ratio, the multiplication of probabilities is transformed into the addition of the log-difference ratio, reducing computational cost and complexity. When it is applied to formula (11), formula (14) is obtained.

$$\begin{aligned} \log\left(\frac{p(m_i \mid z_{1:t})}{p(\overline{m_i} \mid z_{1:t})}\right) &= \log\left(\frac{p(m_i \mid z_t)}{p(\overline{m_i} \mid z_t)}\right) + \log\left(\frac{p(m_i \mid z_{1:t-1})}{p(\overline{m_i} \mid z_{1:t-1})}\right) \\ &\quad - \log\left(\frac{p(m_i)}{p(\overline{m_i})}\right). \end{aligned} \tag{14}$$

Formula (12) simplifies to

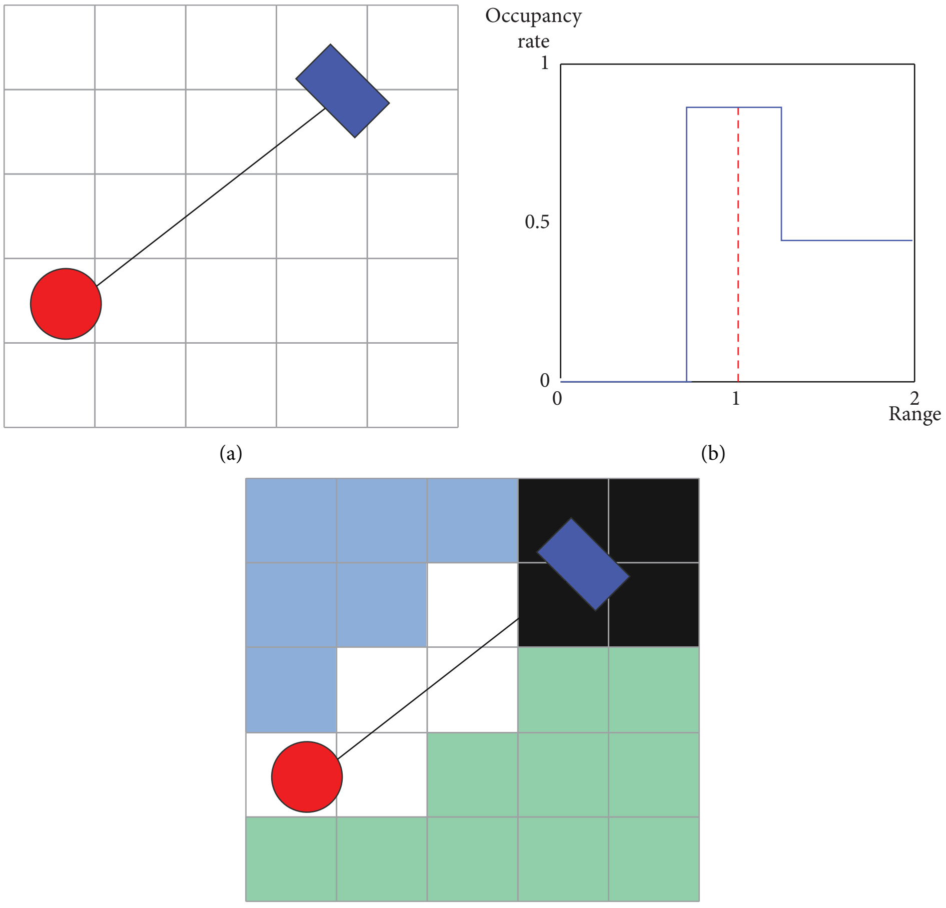
$$L(m_i \mid z_{1:t}) = L(m_i \mid z_t) + L(m_i \mid z_{1:t-1}) - L(m_i). \tag{15}$$

This is the basis of the inverse sensor model, and it updates the instructional image by integrating new information occupied by the unit without updating the entire instructional image.

Through the above derivation, especially formula (12), the remainder of this paper assumes that the occupancy probability of a unit is easy to convert between probability and log-difference ratio.

$$L(m_i \mid z_{1:t}) = \max\left(\min\left(L(m_i \mid z_t) + L(m_i \mid z_{1:t-1}) - L(m_i)\right), l_{\max}, l_{\min}\right). \tag{16}$$

Update formula (13), respectively. This restriction strategy has two main advantages. First, it intuitively limits the number of updates required to change the cell state, allowing the instructional image to change rapidly according to the



(a)

(b)

(c)

Figure 2: The ray casting diagram in two-dimensional space. (a) Light measurement. (b) Ideal model. (c) Occupation grid diagram.

changing environment. Second, it allows adjacent cells to be compressed with values close to the occupancy boundary.

The appearance of a traditional sensory device and the distance that exists in the world is always intellectual, as shown in Figure 2(a). Sensor noise should be considered when designing an ISM. The general equation for ISM is

$$p\left(m_i \mid z_{1:t}\right). \tag{17}$$

When an ideal sensor model is used to update an initially unknown teaching image for all cells, as shown in Figure 2(b), the occupancy probability of each unit between the sensor and the actual measurement unit is $p(m_i|z_t) = 0$. In addition, the probability that each sensor does not observe other units is 1. The updated grid map thus generated is shown in Figure 2(c).

It is also possible that the light missed an obstacle that only partially occupies the cell, as shown in Figure 3. Figures 3(a)–3(c) correspond to Figures 2(a)–2(c), respectively.

2.2. Gaussian Reverse Octree Occupancy Raster Map Generation. The Gaussian inverse sensor model is derived by convolving. As shown in Figure 4, the ideal sensor model, its measurement range is $z = 2\,\mathrm{m}$, and the buffer range around the measurement value z is $L = 1$, which can be expressed as formula (19). Hard probabilities are assigned $p(m_i)$ to each cell i, namely,

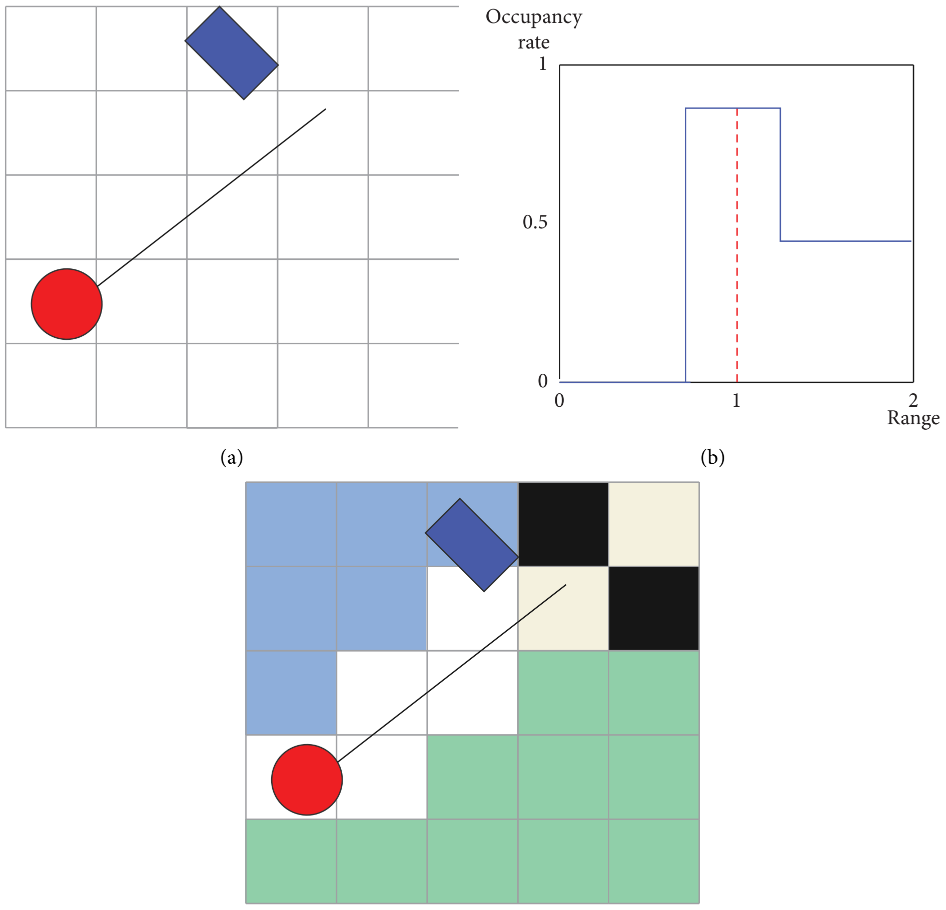
$$g(r) = \begin{cases} 0, & \text{if } r < z - \dfrac{L}{2}, \\ 1, & \text{if } z, \\ 0.5, & \text{otherwise for } r > 0. \end{cases} \tag{18}$$

As shown in Figure 5, the probability distribution function (PDF) of Gaussian noise is used to simulate the noise measured by the sensor. The standard probability density function of a Gaussian distribution is given by following equation:

$$f(r) = \frac{1}{\sigma\sqrt{2\pi}} e^{1(r-0)^2/2\sigma^2}. \tag{19}$$

The variance σ_z represents the uncertainty of the measured value z.

The Gaussian probability distribution function (PDF) of the normal distribution is shown in Figure 6.



(a)

(b)

(c)

Figure 3: The ray casting diagram in the cell occupied by the obstacle part. (a) Light measurement. (b) Ideal model. (c) Occupation grid diagram.

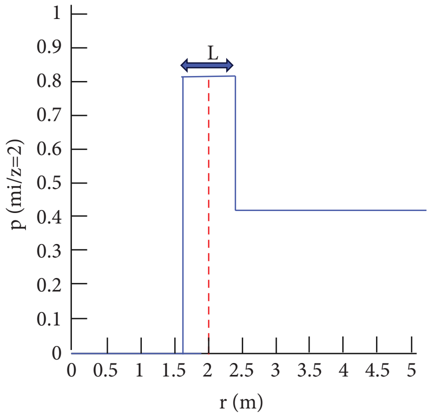


Figure 4: Ideal reverse sensor model diagram.

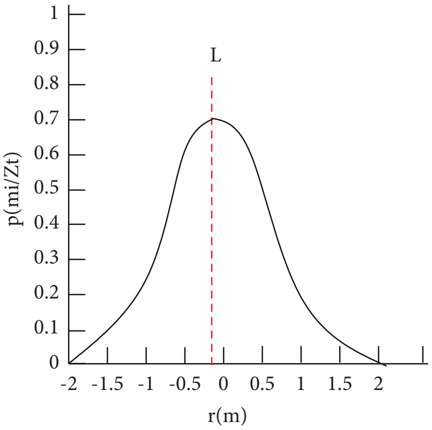


Figure 5: Diagram of Gaussian probability distribution function with normal distribution $\sigma_z = 0.5$.

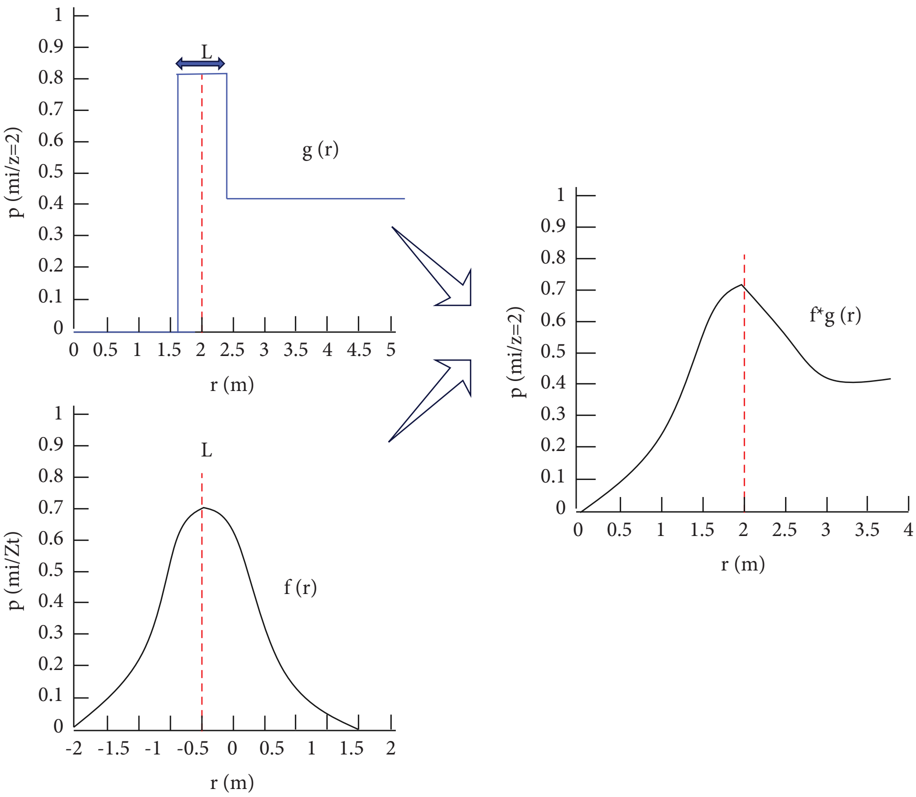


Figure 6: Convolution diagram of ideal sensor model and Gaussian probability distribution function.

$$
\begin{aligned}
(f * g)(r) &= 0F\left(-\infty, z - \frac{L}{2}\right) + 1F\left(z - \frac{L}{2}, z + \frac{L}{2}\right) + 0.5F\left(z + \frac{L}{2}, r\right) \\
&= -\frac{1}{2} erf\left(\frac{r - z - L/2}{\sigma\sqrt{2}}\right) + \frac{1}{2} erf\left(\frac{r - z + L/2}{\sigma\sqrt{2}}\right) - \frac{1}{4} erf\left(\frac{-z}{\sigma\sqrt{2}}\right) + \frac{1}{4} erf\left(\frac{r - z - L/2}{\sigma\sqrt{2}}\right) \\
&= -\frac{1}{4} erf\left(\frac{r - z - L/2}{\sigma\sqrt{2}}\right) + \frac{1}{2} erf\left(\frac{r - z + L/2}{\sigma\sqrt{2}}\right) - \frac{1}{4} erf\left(\frac{-z}{\sigma\sqrt{2}}\right).
\end{aligned} \tag{20}
$$

As shown in Figure 7, the Gaussian inverse sensor model describes that the evaluation along the measurement range tends to 0 until the actual distance to the obstacle is closer. Uncertainty causes the probability value to gradually increase. For cells close to the actual measurement peak, the probability value tends to 1, and then for cells beyond the measurement range, the probability value gradually decreases to 0.5.

Through the derivation and analysis of the reverse sensor model, it can be known that the main factors affecting the generated probability calculation and the shape of the curve are the buffer L, the standard deviation σ, and the measurement range z.

First, a description of each component of the model is given.

$$
p\left(x_c, y_c, z_c\right)^T, l_p = \sqrt{x_c^2 + y_c^2 + z_c^2}. \tag{21}
$$

Moreover, there is $l_{\min} = z_{c\,\min} > 0$. The uncertainty Δl_p of the distance l_p is related to the depth and can be described as

$$
\Delta l_p = \Delta z_c \frac{l_p}{z_c}. \tag{22}
$$

d is the parallax distance between the corresponding pixels.

$$
z_c = \frac{bf}{d}. \tag{23}
$$

Since the given image coordinates are imprecise and have uncertainty Δd, the distance measurement z_c given by

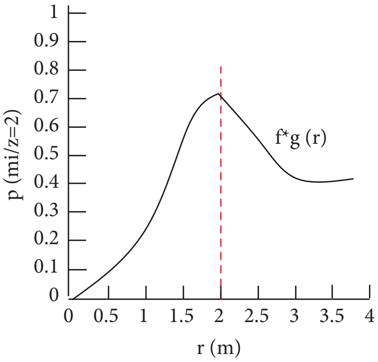


FIGURE 7: Gaussian noise reverse sensor model diagram.

the disparity function has an error Δz_c called the distance resolution, which is given by

$$\Delta z_c = \frac{z_c^2}{bf} \cdot \Delta d. \tag{24}$$

Similar to the Gaussian ISM, the ideal sensor model of Andert's ISM is given by

$$P_{occ}(r) = \begin{cases} P_{\min}, & \text{if } 0 < r < l_p, \\ 0.5, & \text{if } r > l_p, \end{cases} \tag{25}$$

where r is the measurement range.

Andert's sensor model is shown in the following formula:

$$P(s(r)) = P_{occ}(r) + \left(\frac{k}{\Delta l_p \sqrt{2\pi}} + 0.5 - P_{occ}(r) \right) e^{-1/2 \left(r - l_p / \Delta l_p \right)^2}. \tag{26}$$

The effective factor ensures that farther measurements have less effect on the instructional image, while closer measurements have a greater effect on the instructional image. The combination of the effective factor, scaling, and quadratic exponential function produces an asymmetric probability curve around the distance measure. When the measurement distance reaches the maximum range, the probability curve gradually tends to 0.5.

According to the improvement of this paper, it is adapted to monocular vision. The final ISM formula is

$$P(s(r)) = P_{occ}(r) + \left(\frac{k}{\sigma_{zt} \sqrt{2\pi}} + 0.5 - P_{occ}(r) \right) e^{-1/2 \left(r - l_p / \sigma_{zt} \right)^2}, \tag{27}$$

where σ_{zt} is the uncertainty of the LSD-SLAM inverse depth measurement. This formula determines the occupancy probability of a unit in a monocular vision system and differs from stereo vision in that the distance-related uncertainty Δl_p is replaced by the uncertainty σ_{zt} of the LSD-SLAM inverse depth measurement.

3. Simulation Test

Whether the real-time video processing technology proposed in the second part can promote the effect of English culture teaching in English culture teaching needs to be verified by experiments. First, the effect of the algorithm model in this paper is verified.

As shown in Figure 8, where $z = 1$ m and $\sigma = 0.1$, larger values of L expand and increase the height of the peak, and smaller values shrink and lower the peak. The value of L is usually the diagonal width of the cells in the occupied raster image. If the value is too large, it is defined that the occupancy of more surrounding cells is actually measured along the measurement ray.

The standard deviation σ, when applied to the ISM, represents the uncertainty in the occupancy prediction. Intuitively, smaller σ corresponds to higher and narrower peaks, and larger σ corresponds to lower and wider peaks, as shown in Figure 9, where $z = \mathrm{lm}$ and $L = 0.4$.

LSD-SLAM does not have the same degree of distance-dependent uncertainty as conventional fixed baseline stereo matching and is therefore not considered in the final model. As shown in Figure 10, measurements were taken at $z = 1$ m, 2 m, and 3 m and $L = 0.4$, showing the ISM probabilities for different measurement distances. It can be seen that the Gaussian ISM overshoots within the peak probability range of the occupancy prediction, and the probability of the measured value in the range is slightly lower than the actual measured value.

Figure 11 shows the resulting probabilities for different measured distances independent of distance uncertainty. The unit size is 0.1 m. For cells before measurement, the cells are divided into free spaces and the probability is assigned the minimum value. In addition to this, the units after the measurement range tend to be 0.5, indicating that they are unknown.

This section will discuss in detail the impact of the key parameters of the improved measurement ISM model, especially the effective factor k and the standard deviation σ (measurement uncertainty). It will show the shape of the resulting probability curve when depth-dependent uncertainty is considered.

3.1. Effective Factor k.

3.1. Effective Factor k. Figure 12 shows the effect of the effective factor k on the probability of results based on depth measurements. The unit size is 0.1 m, the standard deviation $\sigma = 0.1$, and the measurement distance $z = 3$ m. The effective factor acts as a scale factor for the measurement, allowing measurements at close range to have a greater impact on the instructional image than measurements at a distance. Since it is unclear how to choose this factor, it is still necessary to find a suitable effective factor to provide the best results for all measurements of monocular systems.

As expected, the standard deviation σ is very similar to the Gaussian ISM. As shown in Figure 13, the effective factor $k = 0.1$, and the measurement distance $z = 3$ m. The larger σ, the lower and wider the peak, and the smaller σ, the narrower and higher the peak. However, the improved measured ISM has a significantly narrower curve than the Gaussian ISM, making its prediction of occupancy more specific.

For the improved measurement inverse sensor model, the effect of distance-dependent uncertainty is shown in Figure 14. The unit size is 0.1 m, the effective factor $k = 0.1$,

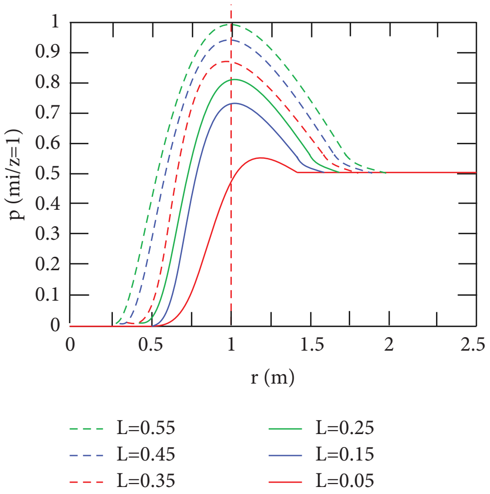


Figure 8: Effect diagram of different L values on the Gaussian inverse sensor model.

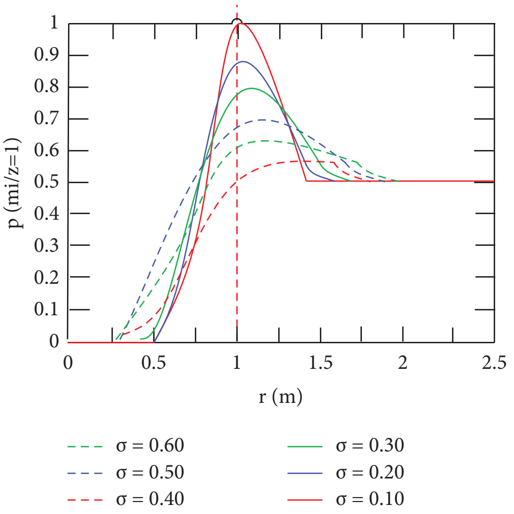


Figure 9: Effect diagram of different σ values on the Gaussian inverse sensor model.

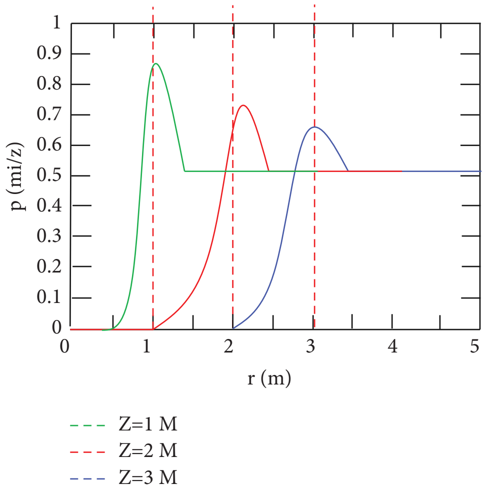


Figure 10: Effect diagram of different z values on the Gaussian inverse sensor model.

$b = 0.3$ m, $f = 700$ pixels, and the parallax $d = 0.5$. In addition, it should be noted that compared to Gaussian ISM, the improved measurement ISM predicts the peak occupancy within the actual measurement range, while the Gaussian ISM predicts the occupancy after the actual measurement.

The above system is applied to English culture teaching, and the evaluation is carried out through the teaching, and the results shown in Table 1 are obtained.

Language and culture are closely linked. It is impossible to teach a language without culture, which is the necessary context for language use. The target language cannot be mastered well without cultural knowledge related to the target language. Therefore, learners should be as close as possible to native speakers of the target language, to understand their way of life, way of thinking, and behavior. Cultural teaching provides the necessary connections between language and society and culture and real life. Only by understanding the culture of a society can they fully understand the way of thinking, behavior, and speech of native speakers, so as to truly master the target language. In this sense, gaining information about foreign cultures is as important as language learning itself. Cultural studies provide learners with insight into the target culture, providing the opportunity to learn about other countries, people, and ways of life without direct experience. People may be more tolerant of other cultures than being narrow-minded. Cultural studies can broaden people's horizons and develop their personalities.

The learner's affective factors require imparting of cultural knowledge. The learner is the main body of learning, and their cognitive and affective factors play an important role in learning. Emotional factors include motivation, attitude, and personality traits. Motivation can be divided into extrinsic and intrinsic motivation. Intrinsic motivation refers to the student's current goals and objectives, and extrinsic motivation refers to artificial incentives, that is, "bribes of pleasure." All these joys motivate learners to study hard. However, not all learners can obtain such happiness because not all learners can achieve good results in language learning. Therefore, it is necessary to explore another kind of joy that every language learner can derive from language learning, and it is the teacher's responsibility to help them get the motivation from learning itself rather than from getting good grades in exams. The joy of learning a foreign language can come from the culture conveyed by the language itself. Language is the carrier of culture. If learners can not only learn about the language system itself but also gain some cultural knowledge, they will definitely have fun exploring new things. English reflects the beliefs, values, and lifestyles of native English speakers, which may differ from Chinese. If teachers combine cultural teaching with language teaching, students can have fun in understanding the similarities and differences between the culture of the mother tongue and the culture of the target language. Needless to

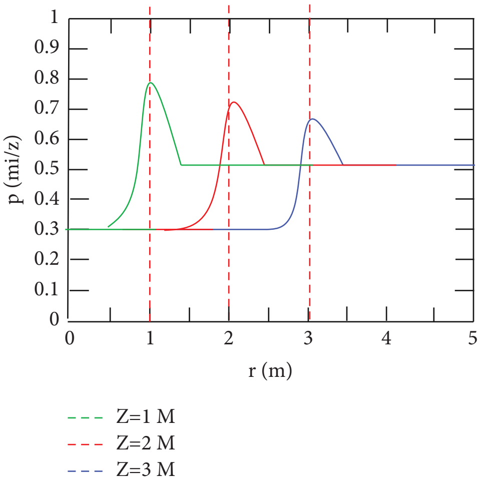


Figure 11: Diagram of an improved measurement inverse sensor model without depth-dependent uncertainty.

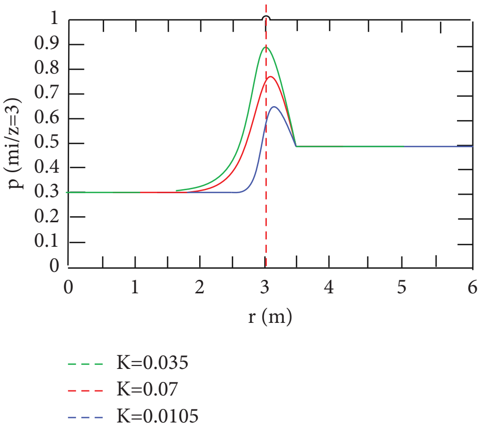


Figure 12: Effect of different k values on the improved measurement inverse sensor model.

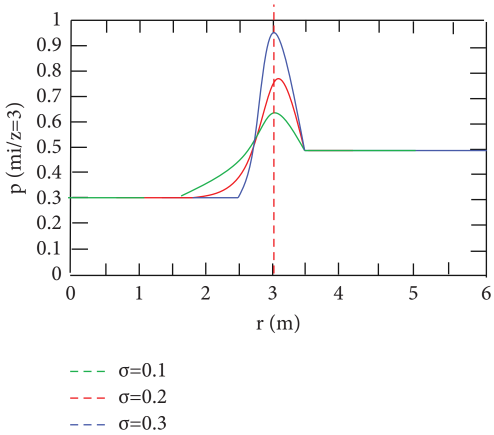


Figure 13: Effect of different σ values on the improved measurement inverse sensor model.

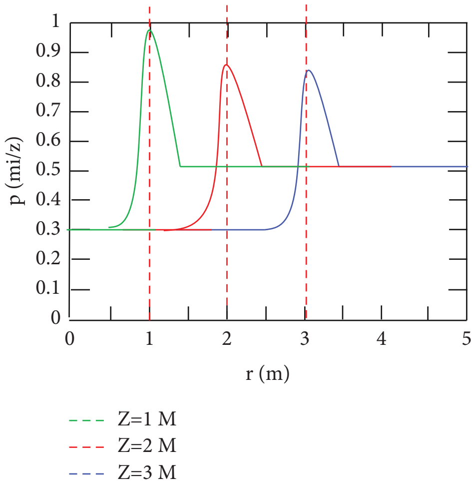


Figure 14: Effect of different z values on the improved measurement inverse sensor model.

Table 1: The application effect of real-time video processing technology in English culture teaching.

Number	Teaching evaluation	Number	Teaching evaluation	Number	Teaching evaluation
1	85.00	18	85.22	35	82.25
2	82.09	19	83.20	36	84.84
3	85.26	20	87.18	37	86.03
4	86.45	21	83.76	38	86.20
5	87.47	22	85.56	39	85.82
6	84.39	23	82.14	40	83.84
7	86.94	24	87.07	41	87.34
8	82.02	25	84.77	42	85.79
9	82.01	26	82.85	43	83.74
10	87.46	27	87.58	44	87.83
11	83.97	28	81.54	45	82.32
12	85.04	29	82.93	46	85.08
13	83.25	30	83.62	47	83.49
14	83.48	31	86.96	48	81.05
15	86.74	32	83.25	49	81.72
16	81.99	33	81.55	50	85.51
17	82.38	34	85.86	51	85.23

say, cultural teaching is an important supplement to language teaching, which enables students to experience fun in the process of learning a lot of language materials. The study of the target language culture can improve and enrich students' understanding of the native language culture and can enable students to gain pleasure from learning a large number of language materials. Obviously, learning the target language culture can enhance students' understanding of the world, cultivate multicultural awareness, and increase their interest in foreign language learning.

It can be seen from the above research that the real-time video processing technology proposed in this paper has a good effect in English culture teaching, and it can be applied to English culture teaching to improve the effect of English culture teaching.

4. Conclusion

Intercultural communication is an exchange process of equal bilateral interaction between different cultures. Mother tongue culture is an integral part of it, a springboard, starting point, and bridge for communication. In developing intercultural communication skills, the mother tongue culture is the basis for understanding different cultures and improving sensitivity and tolerance and critical acceptance of different cultures. Moreover, the introduction of culture should also follow scientific principles, that is, avoid subjective arbitrariness and partial generalization and strive to be accurate, comprehensive, and objective. In addition, cultural teaching must be combined with language teaching, so as to be natural and not rigid. In the process of lesson preparation, classroom teaching should be designed according to the development of students' abilities, and specific teaching methods should be explored. In order to improve the effect of English culture teaching, this paper combines the real-time video image processing technology to construct an English culture teaching system. The experimental research results show that the real-time video processing technology proposed in this paper has a good effect in English culture teaching, and it can be applied to English culture teaching to improve the effect of English culture teaching.

Data Availability

The labeled dataset used to support the findings of this study is available from the corresponding author upon request.

Conflicts of Interest

The author declares that there are no conflicts of interest.

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