```python
import math

def cosine_similarity(vec1, vec2):
    dot_product = sum(a * b for a, b in zip(vec1, vec2))

    magnitude1 = math.sqrt(sum(a * a for a in vec1))
    magnitude2 = math.sqrt(sum(b * b for b in vec2))

    if magnitude1 == 0 or magnitude2 == 0:
        return 0  # To avoid division by zero

    return dot_product / (magnitude1 * magnitude2)
```