core::tensor

```
template <class T, class Allocator = allocator<T> > class tensor;
```

Member types

member type	definition	notes
value_type	The first template parameter (T)	
allocator_type	The second template parameter (Allocator)	defaults to: allocator<T>
scalar_type	scalar<T, Allocator>	
const_scalar_type	const scalar_type	
vector_type	vector<T, Allocator>	
const_vector_type	const vector_type	
matrix_type	matrix<T, Allocator>	
const_matrix_type	const matrix_type	
reference	value_type&	
const_reference	const value_type&	
pointer	value_type*	
const_pointer	const value_type*	
iterator	a bidirectional iterator to value_type	convertible to: const_iterator
const_iterator	a bidirectional iterator to const value_type	
reverse_iterator	a bidirectional reverse iterator to value_type	
const_reverse_iterator	a bidirectional reverse iterator to const value_type	
size_type	an unsigned integral type that can represent any non-negative value of difference_type	usually the same as size_t
difference_type	a signed integral type	usually the same as ptrdiff_t

Member functions

(constructor)	Construct tensor (public member function)
(destructor)	Tensor destructor (public member function)
operator=	Assign content (public member function)

Iterators:

begin	Return iterator to beginning (public member function)
end	Return iterator to end (public member function)
rbegin	Return reverse_iterator to reverse beginning (public member function)
rend	Return reverse_iterator to reverse end (public member function)
cbegin	Return const_iterator to beginning (public member function)
cend	Return const_iterator to end (public member function)
crbegin	Return const_reverse_iterator to reverse beginning (public member function)
crend	Return const_reverse_iterator to reverse end (public member function)
vbegin	Return iterator to begin row (public member function)
vend	Return iterator to end row (public member function)
rvbegin	Return reverse_iterator to reverse begin row (public member function)
rvend	Return reverse_iterator to reverse end row (public member function)
cvbegin	Return const_iterator to begin row (public member function)
cvend	Return const_iterator to end row (public member function)
crvbegin	Return const_reverse_iterator to reverse begin row (public member function)
crvend	Return const_reverse_iterator to reverse end row (public member function)
mbegin	Return iterator to begin matrix (public member function)
mend	Return iterator to end matrix (public member function)
rmbegin	Return reverse_iterator to reverse begin matrix (public member function)
rmend	Return reverse_iterator to reverse end matrix (public member function)
cmbegin	Return const_iterator to begin matrix (public member function)
cmend	Return const_iterator to end matrix (public member function)
crmbegin	Return const_reverse_iterator to reverse begin matrix (public member function)

crmend	Return const_reverse_iterator to reverse end matrix (public member function)

Capacity:

empty	Test whether container is empty (public member function)
dimension	Return dimension (public member function)
columns	Return columns (public member function)
rows	Return rows (public member function)
batch	Return batch (public member function)
area	Return area (public member function)
volume	Return volume (public member function)
row_size	Return row size (public member function)
matrix_size	Return matrix size (public member function)
size	Return size (public member function)
max_size	Return maximum size (public member function)

Element access:

operator[]	Access element (public member function)
at	Access element (public member function)
data	Access data (public member function)
scalar	Return the specified scalar (public member function)
vector	Return the specified vector (public member function)
matrix	Return the specified matrix (public member function)

Modifiers:

assign	Assign a new tensor (public member function)
create	Create a tensor without copying the data (public member function)
fill	Fill tensor with specified value (public member function)
linear_fill	Fill tensor with linear gradient values (public member function)

value	Set tensor elements with specified value (public member function)
linear_value	Set tensor elements with linear gradient values (public member function)
generate	Generate values for tensor with function (public member function)
remap	Map source data to a tensor (public member function)
reshape	Changes the shape of the tensor without copying the data (public member function)
swap	Swap content (public member function)
clear	Clear content (public member function)

Operations:

operator+=	Add a value or tensor (public member function)
operator-=	Subtract a value or tensor (public member function)
operator*=	Multiply a value or tensor (public member function)
operator/=	Divided by a value or tensor (public member function)
operator&=	And a value or tensor (public member function)
operator^=	Xor a value or tensor (public member function)
operator|=	Or a value or tensor (public member function)

Observers:

get_allocator	Get allocator (public member function)

Non-member function overloads:

operator+	Tensor addition (public member function)
operator-	Tensor subtraction (public member function)
operator*	Tensor multiplication (public member function)
operator/	Tensor division (public member function)
operator&	Tensor and (public member function)
operator^	Tensor xor (public member function)

operator|	Tensor or (public member function)
operator<	Tensor less than (public member function)
operator>	Tensor greater than (public member function)
operator<=	Tensor less than or equal to (public member function)
operator>=	Tensor greater than or equal to (public member function)
operator==	Tensor equal to (public member function)
operator!=	Tensor not equal to (public member function)