

resophonic::kamasu

# Computing on the GPU with boost::proto

Troy D. Straszheim

Resophonic Systems, Inc.

Washington, DC



# Outline

## Motivation

- The Basic Problem That We Studied
- Previous Work

## Our Results/Contribution

- Main Results
- Basic Ideas for Proofs/Implementation

# An Algorithm For Finding Primes Numbers.

```
int main (void)
{
    std::vector<bool> is_prime (100, true);
    for (int i = 2; i < 100; i++)
        if (is_prime[i])
        {
            std::cout << i << " ";
            for (int j = i; j < 100; j+=i)
                is_prime [j] = false;
        }
    return 0;
}
```

# An Algorithm For Finding Primes Numbers.

```
int main (void)
{
    std::vector<bool> is_prime (100, true);
    for (int i = 2; i < 100; i++)
        if (is_prime[i])
        {
            std::cout << i << " ";
            for (int j = i; j < 100; j+=i)
                is_prime [j] = false;
        }
    return 0;
}
```

# An Algorithm For Finding Primes Numbers.

```
int main (void)
{
    std::vector<bool> is_prime (100, true);
    for (int i = 2; i < 100; i++)
        if (is_prime[i])
        {
            std::cout << i << " ";
            for (int j = i; j < 100; j++)
                is_prime [j] = false, j+=i);
        }
    return 0;
}
```

# An Algorithm For Finding Primes Numbers.

```
int main (void)
{
    std::vector<bool> is_prime (100, true);
    for (int i = 2; i < 100; i++)
        if (is_prime[i])
        {
            std::cout << i << " ";
            for (int j = i; j < 100; j+=i)
                is_prime [j] = false;
        }
    return 0;
}
```

- ▶ **foo**
- ▶ bar
- ▶ baz
- ▶ quux

- ▶ foo
- ▶ **bar**
- ▶ baz
- ▶ quux



- ▶ foo
- ▶ bar
- ▶ **baz**
- ▶ quux

- ▶ foo
- ▶ bar
- ▶ baz
- ▶ **quux**

hee  
movie here

# Outline

## Motivation

The Basic Problem That We Studied

Previous Work

## Our Results/Contribution

Main Results

Basic Ideas for Proofs/Implementation

# Make Titles Informative. Use Uppercase Letters.

- ▶ Use `itemize` a lot.
- ▶ Use very short sentences or short phrases.

# Make Titles Informative.

You can create overlays...

- ▶ using the `pause` command:

- ▶ First item.

- ▶ Second item.

- ▶ using overlay specifications:

- ▶ First item.

- ▶ Second item.

- ▶ using the `general uncover` command:

- ▶ First item.

- ▶ Second item.

# Make Titles Informative.

You can create overlays...

- ▶ using the `pause` command:
  - ▶ First item.
  - ▶ Second item.
- ▶ using overlay specifications:
  - ▶ First item.
  - ▶ Second item.
- ▶ using the `general uncover` command:
  - ▶ First item.
  - ▶ Second item.

# Make Titles Informative.

You can create overlays...

- ▶ using the `pause` command:
  - ▶ First item.
  - ▶ Second item.
- ▶ using overlay specifications:
  - ▶ First item.
  - ▶ Second item.
- ▶ using the `general uncover` command:
  - ▶ First item.
  - ▶ Second item.



# Make Titles Informative.

You can create overlays...

- ▶ using the `pause` command:
  - ▶ First item.
  - ▶ Second item.
- ▶ using overlay specifications:
  - ▶ First item.
  - ▶ Second item.
- ▶ using the general `uncover` command:
  - ▶ First item.
  - ▶ Second item.

# Make Titles Informative.

You can create overlays...

- ▶ using the `pause` command:
  - ▶ First item.
  - ▶ Second item.
- ▶ using overlay specifications:
  - ▶ First item.
  - ▶ Second item.
- ▶ using the general `uncover` command:
  - ▶ First item.
  - ▶ Second item.

# Make Titles Informative.

You can create overlays...

- ▶ using the `pause` command:
  - ▶ First item.
  - ▶ Second item.
- ▶ using overlay specifications:
  - ▶ First item.
  - ▶ Second item.
- ▶ using the general `uncover` command:
  - ▶ First item.
  - ▶ Second item.

# Outline

## Motivation

The Basic Problem That We Studied

Previous Work

## Our Results/Contribution

Main Results

Basic Ideas for Proofs/Implementation

# Make Titles Informative.

# Make Titles Informative.

# Outline

## Motivation

The Basic Problem That We Studied  
Previous Work

## Our Results/Contribution

Main Results  
Basic Ideas for Proofs/Implementation

# Make Titles Informative.



# Make Titles Informative.

# Make Titles Informative.

# Outline

## Motivation

The Basic Problem That We Studied  
Previous Work

## Our Results/Contribution

Main Results  
Basic Ideas for Proofs/Implementation

# Make Titles Informative.

# Make Titles Informative.

# Make Titles Informative.

# Summary

- ▶ The **first main message** of your talk in one or two lines.
- ▶ The **second main message** of your talk in one or two lines.
- ▶ Perhaps a **third message**, but not more than that.
- ▶ Outlook
  - ▶ Something you haven't solved.
  - ▶ Something else you haven't solved.

# For Further Reading I



A. Author.

*Handbook of Everything.*

Some Press, 1990.



S. Someone.

On this and that.

*Journal of This and That*, 2(1):50–100, 2000.