

# Intro to gamedev with D

By Professor Stefan Brus

# My background

- Computer nerd since the dawn of time
- Programmer since I was 12
- Studied computer engineering at university
- Professional D1 developer since 2013
- Hobbyist D2 developer since 2014
- NOT a game developer, merely a dabbler

# Goal of this presentation

- Prove that it is possible to create games with D
- Show an example step-by-step process from displaying an empty window, to having an application that has the basic elements of a computer game
- Demonstrate what is possible with this approach
- Hopefully inspire you to create your own games!

# Environment: dub & dependencies

- DUB - the D language package manager
- dub.json contains project configuration and dependencies
- We will use Derelict's SDL bindings:  
[github.com/DerelictOrg/DerelictSDL2](https://github.com/DerelictOrg/DerelictSDL2)

# Step 1: Show a window for a few seconds

- Load Derelict's SDL bindings
- Initialize SDL
- Create a window
- Wait a few seconds
- Destroy the window

## Step 2: Draw an image of our hero

- Load Derelict's SDL\_Image bindings
- Load image file containing hero sprite from disk
- Create SDL surface from image
- “Blit” hero sprite surface onto our window's surface
- Update the window surface
- Free our surfaces when the program exits

## Step 3: Refactor into a class

- Main function is getting quite big
- Create a game class with an initializer method (the constructor), a de-initializer method (the destructor), and a method to run the game

## Step 4: Use event based programming

- Only exit the program when the user has decided to quit
- Poll the SDL event queue
- Handle the quit event



## Step 5: Handle keyboard input

- We want to move our hero using the WASD keys
- Use an SDL rectangle to keep track of our hero's position
- Check the keyboard state to handle input
- Set the hero rectangle's x and y coordinates based on which keys were down
- Don't forget to clear the game window between draws!

## Step 6: Use game loop structure

Game loop pseudocode:

```
while game_is_running:
```

```
    handleInput();
```

```
    updateState();
```

```
    renderGame();
```

# Demos!

- Conway's Game Of Life
- Ultra Space Shooter 4D 2000 X

# Where to go from here

## TODO:

- Decouple SDL code from game logic
- Make movement smoother
- Make an actual game

## Useful things to learn about:

- Collision detection
- Game state management
- Data serialization

(bonus slide)