

# Software Workshop No. 0

UCSB Robotics, Fall 2020 | Alex Mei

# ABOUT ME

- 2<sup>nd</sup> Year CS Major
- ULA + ERSP
- Procore Intern



# ABOUT ME

- Cook
- Survivor
- Games

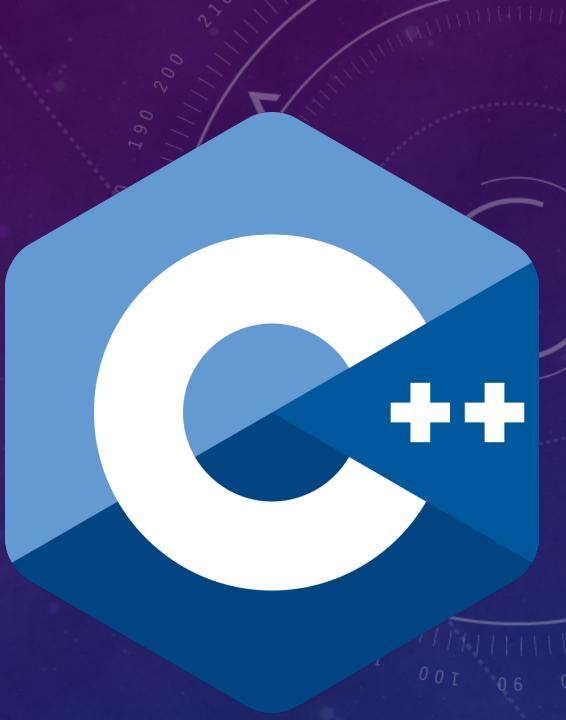


Ultimate  
Tic-Tac-Toe

A circular inset featuring a tic-tac-toe grid on a light blue background. The grid has three 'X' marks in the top row, three 'O' marks in the middle row, and three 'X' marks in the bottom row. The word "Ultimate" is written in large, bold, dark blue letters across the top of the grid, and "Tic-Tac-Toe" is written in large, bold, dark blue letters across the bottom.

# TODAY'S AGENDA

- Workshop Overview
- Why C++?
- Installing Visual Studio Code
- Additional Set Up



# FALL AT A GLANCE

- Tutorial Workshops: series of 5 workshops from the beginning to Object-Oriented Programming
- 2 Mini Projects: short tag-team projects with robotics applications
- 1 Team Project: multi-phase Vex simulation group project

# STRUCTURE

- Weekly Workshops: October 10<sup>th</sup> - December 5<sup>th</sup>
  - Hour One: Optional\* Tutorial Workshop
  - Hour Two: Project Workshop

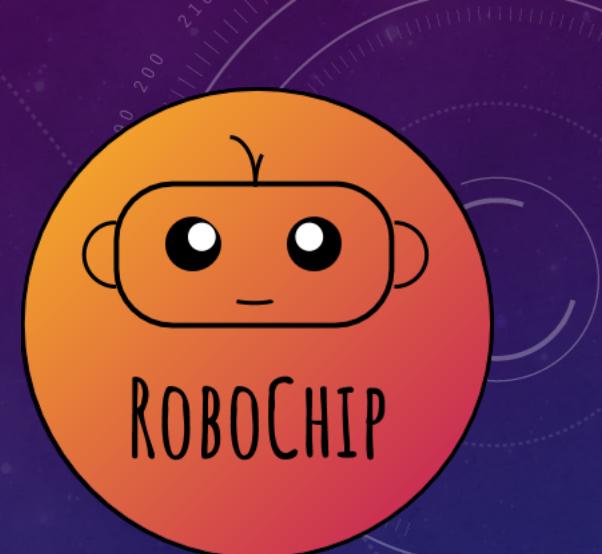
# OUTLINE

- Workshop 0: Introduction & Installation
- Workshop 1: C++ Basics & PID Mini-Project
- Workshop 2: Iteration & Obstacle Detection Mini-Project
- Workshop 3: Structs + Classes & Change Up Project: Design Phase

# OUTLINE

- Workshop 4: Version Control Tools & Change Up Project: Implementation Phase
- Workshop 5: Inherited Classes & Change Up Project: AI Phase
- Workshop 6: Change Up Project: Graphics Phase
- Workshop 7: Change Up Tournament Social

# ROBOCHIPS



- Software Team Developer: Earn 35 Robochips for extra perks
- Robochip raffle at the end of the quarter; 1 robochip = 1 raffle entry

# WHY C++?

- VEX U: the official language for the V5 system for VEX programming
- Memory Control: C++ gives the highest ability to control memory, crucial for low memory systems
- UCSB CS: the CS department also uses C++ as the primary language for their courses

# C++ COMPILERS / MAKE

- C++ is pre-installed in most current systems, but not the compiler
- Compiler: program that links source code and translate it into machine code
- Make: program to reduce the effort needed to compile code

# INSTALLATION FOR WINDOWS (COMPILER)

1. Download compiler at <https://osdn.net/projects/mingw/releases/>
2. Run installation set up manager
3. Install all packages
4. Add the location of the compiler to the PATH environment variable

# INSTALLATION FOR WINDOWS (COMPILER)

osdn.net/projects/mingw/releases/

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DSDN > Find Software > Software Development > Code Generators > MinGW - Minimalist GNU for Windows > Download File List

Category: Software Search

## MinGW - Minimalist GNU for Windows

Description Downloads Source Code Ticket Communication News

### Download List

RSS

#### Project Description

This is the official download site for the latest packages originating from the [MinGW.org Project](#).  
MinGW is a native Windows port of the GNU Compiler Collection (GCC), with freely distributable import libraries and header files for building native Windows applications; includes extensions to the MSVC runtime to support C99 functionality. Although (currently) offering only a 32-bit compiler suite, all of MinGW's software will execute on the 64bit Windows platforms.  
MinGW is a registered trademark of [Software in the Public Interest Inc.](#), registration number [86017856](#); this trademark has been registered on behalf of the [MinGW.org Project](#), and its use by any other project is unauthorized.

#### System Requirements

Operating System: Windows

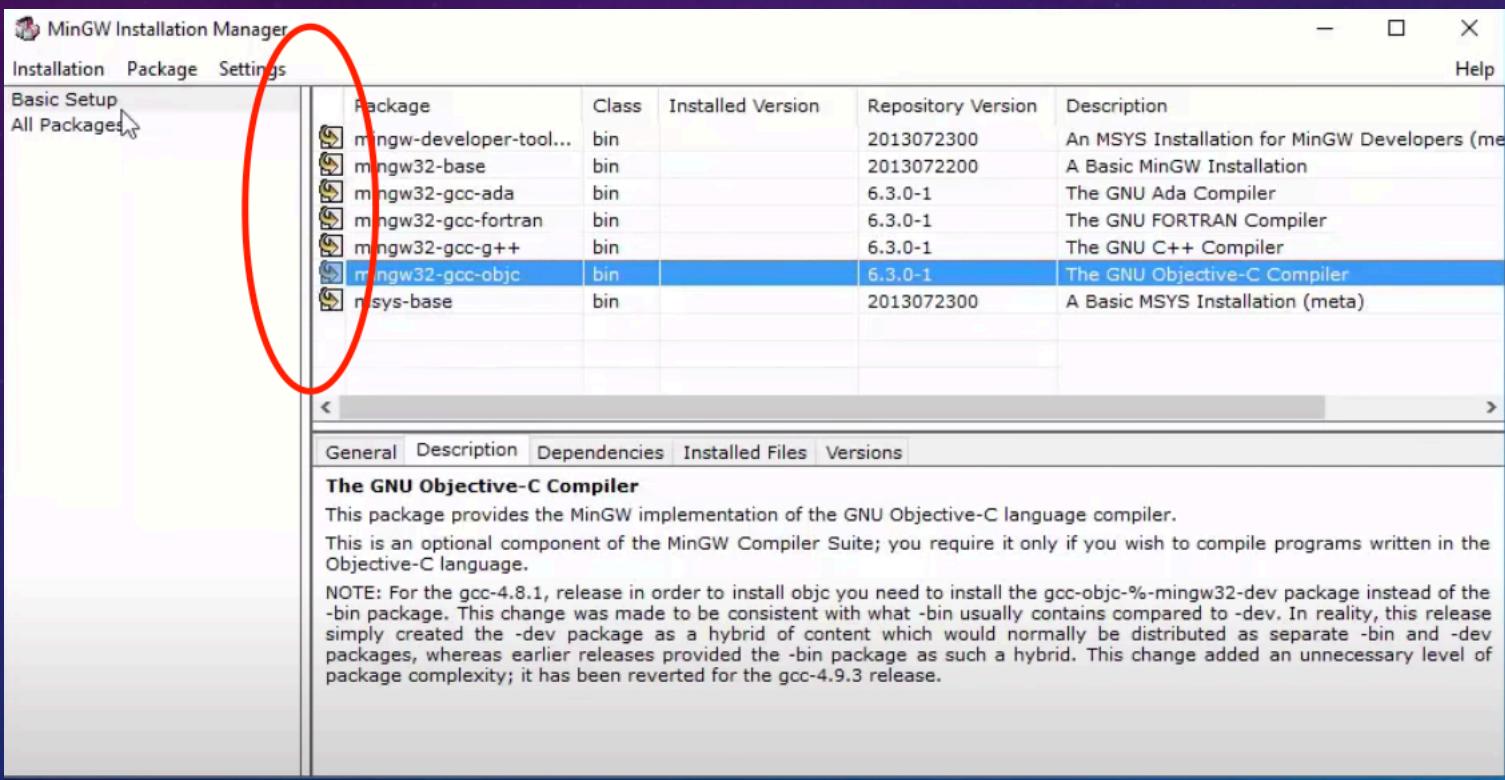
#### Review

3.8  
41 Reviews

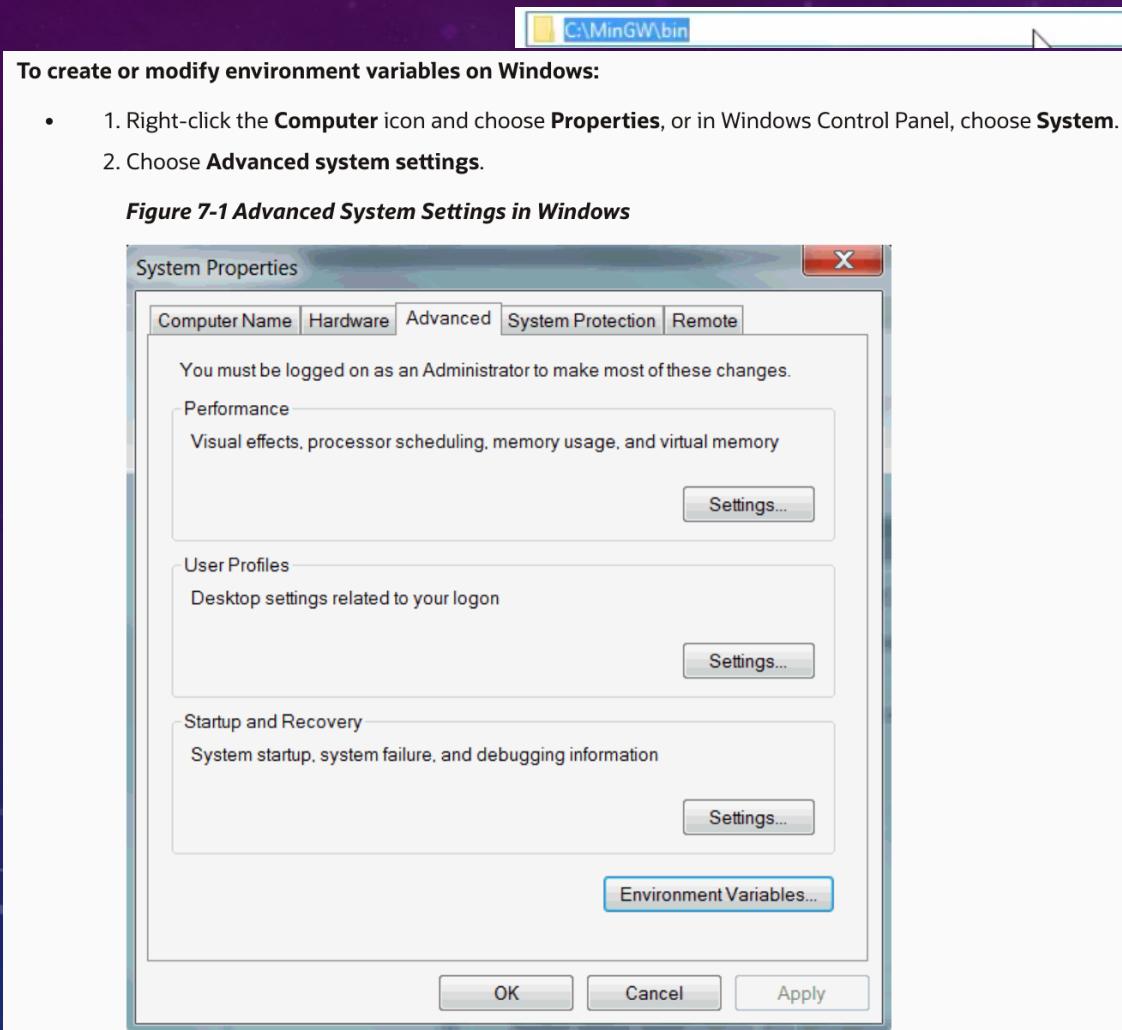
Review this project

mingw-get-setup.exe (Date: 2017-09-06, Size: 91.00 KB)

# INSTALLATION FOR WINDOWS (COMPILER)



# INSTALLATION FOR WINDOWS (COMPILER)



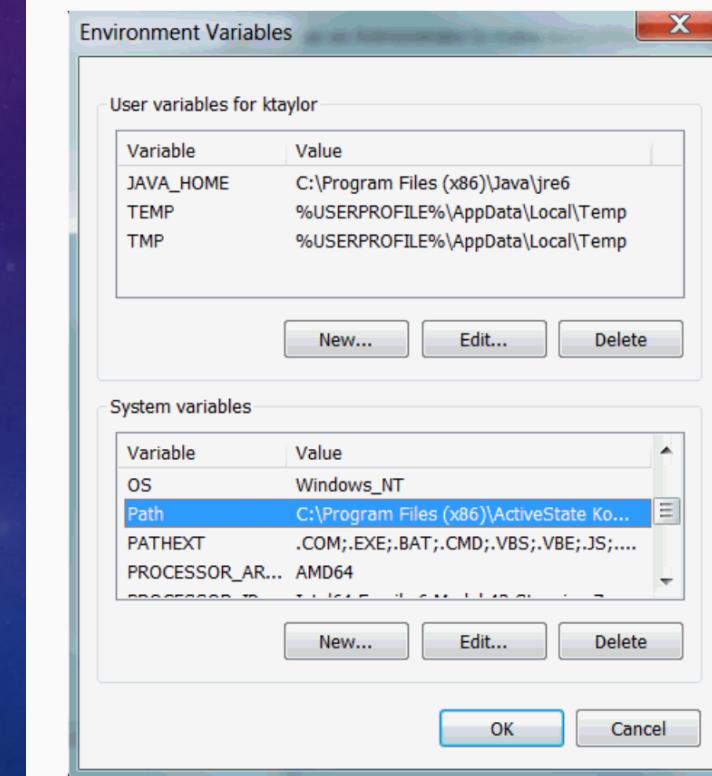
To create or modify environment variables on Windows:

- 1. Right-click the **Computer** icon and choose **Properties**, or in Windows Control Panel, choose **System**.
- 2. Choose **Advanced system settings**.

**Figure 7-1 Advanced System Settings in Windows**

3. On the Advanced tab, click **Environment Variables**.

**Figure 7-2 Environment Variables Dialog in Windows**



Description of "Figure 7-2 Environment Variables Dialog in Windows"

- 4. Click **New** to create a new environment variable. Click **Edit** to modify an existing environment variable.
- 5. After creating or modifying the environment variable, click **Apply** and then **OK** to have the change take effect.

# INSTALLATION FOR WINDOWS (MAKE)

1. On command line, run the following command: mingw-get install mingw32-make
2. In the installed directory, change the mingw32-make.exe file to be named make.exe

# INSTALLATION FOR MAC & LINUX

- Mac: No action needed! C++ and Make already installed.
- Linux: Run the following command in the terminal shell: `sudo apt install g++`

# VISUAL STUDIO CODE

- <http://www.code.visualstudio.com/download>
- Graphical Interface
- Easy to Use
- C++ Extensions