



# Design and Implementation of Online Experiments



nodeGame.org

Stefano Balietti

*MZES and Heidelberg*

nodeGame:  
Preparing Environment

@balietti  
@nodegameorg  
stefanobalietti.com

# nodeGame: Online Real-Time Synchronous Experiments



- Powerful API to customize experiments
- Access to low-level details
- Integrated JS database
- Fast and highly scalable
- Game Levels
- Modular design (games, widgets, window)
- Well-documented (and active Forum)
- Integration with Amazon Mechanical Turk
- Digital Ocean Cloud One Click Install

# Who Develops NodeGame?



Me! (shakty)



B. Vartok, L. Miserez, J. Dorrie,  
P. Kueng, Ewen Wang, and others.  
(thanks!)

## Why Is It Called NodeGame?

It comes from [Node.JS](#), in which it is implemented, particularly suited for real-time interactive games.

## Why Node.JS ?

Built on Chrome's V8 JavaScript engine, it uses an event-driven, non-blocking I/O model that makes it lightweight and efficient.

Node.js' package ecosystem, npm, is the largest ecosystem of open source libraries in the world.

# Install Required Packages

1. **Git Latest** <https://git-scm.com> (Windows users install and use Git Bash)
2. **Node.JS LTS** <https://nodejs.org/en>

# Install Required Packages

1. **Git Latest** <https://git-scm.com> (Windows users install and use Git Bash)
2. **Node.JS LTS** <https://nodejs.org/en>



**Note! If prompted, do *not* install extra "necessary" software.**

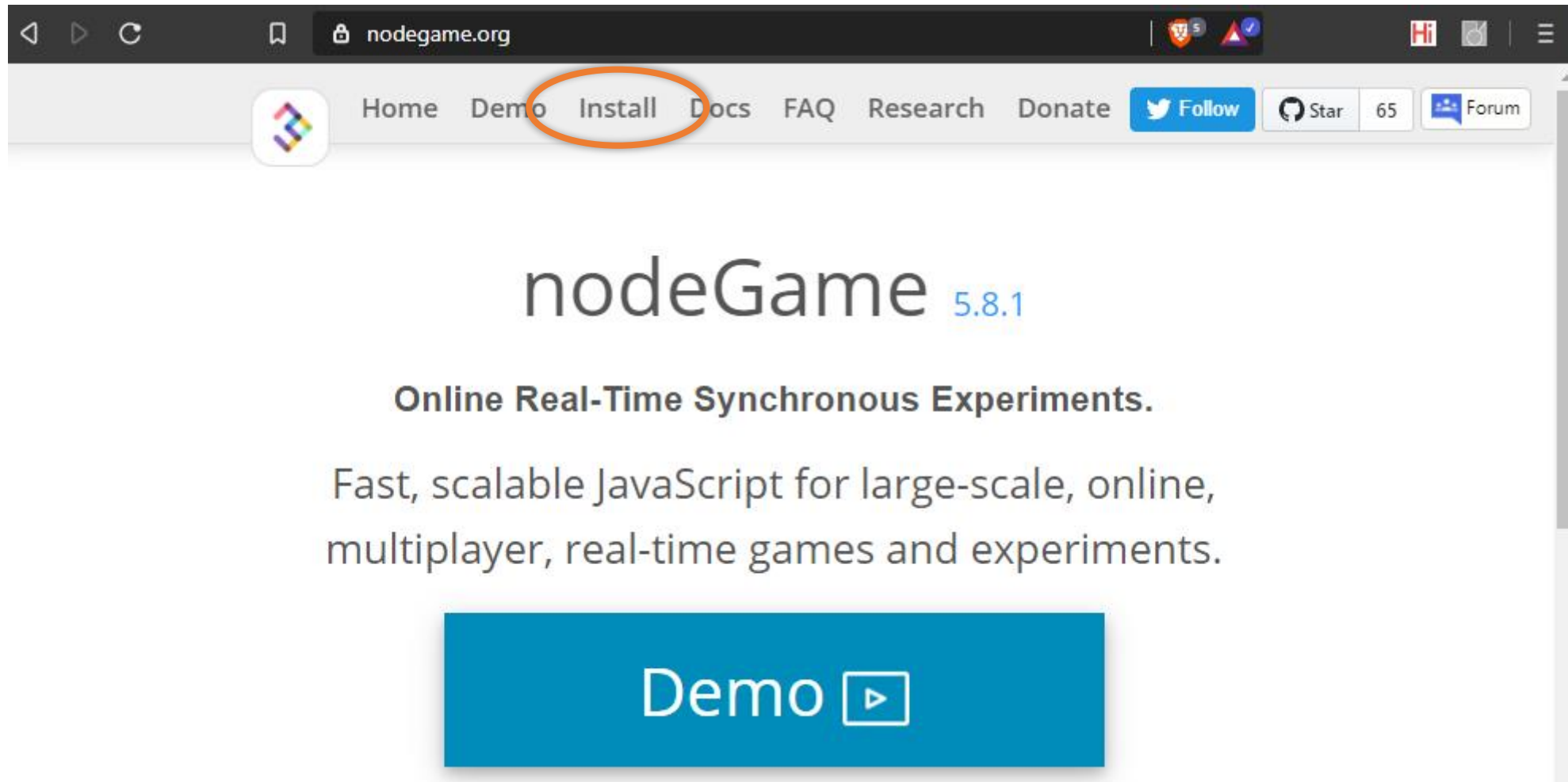
# Install Required Packages

1. **Git Latest** <https://git-scm.com> (Windows users install and use Git Bash)
2. **Node.JS LTS** <https://nodejs.org/en>
3. **Text Editor** with syntax highlighting associated with .js files
  - Simple: Notepad++ (Windows), TextMate, TextWrangler (Mac), Geany (both)
  - Advanced: **Atom**, Sublime, Emacs, Vim

*Check the slide deck about "Configuring the Text Editor Atom"*

# Install nodeGame

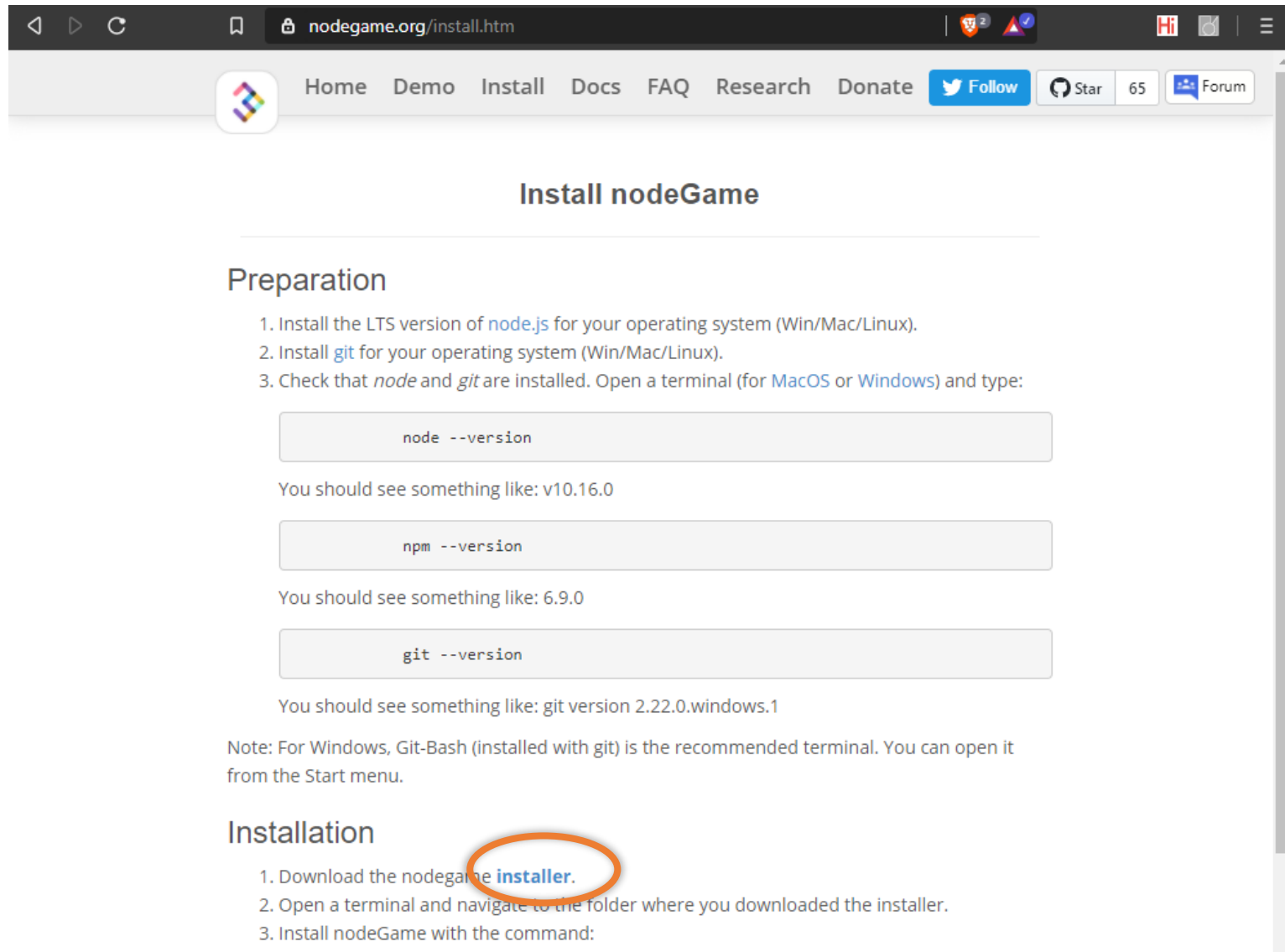
<https://nodegame.org>



The screenshot shows a web browser window with the URL `nodegame.org` in the address bar. The navigation menu includes `Home`, `Demo`, `Install` (circled in orange), `Docs`, `FAQ`, `Research`, and `Donate`. There are also social media links for `Follow` (Twitter), `Star` (GitHub, 65 stars), and `Forum`. The main content area features the `nodeGame 5.8.1` logo, the tagline `Online Real-Time Synchronous Experiments.`, and a description: `Fast, scalable JavaScript for large-scale, online, multiplayer, real-time games and experiments.` At the bottom, there is a large blue button labeled `Demo` with a play icon.



# Install nodeGame



The screenshot shows a web browser window with the URL `nodegame.org/install.htm`. The page has a navigation bar with links for Home, Demo, Install, Docs, FAQ, Research, and Donate. There are also social media buttons for Follow, Star (65), and Forum. The main content area is titled "Install nodeGame" and is divided into two sections: "Preparation" and "Installation".

## Preparation

1. Install the LTS version of [node.js](#) for your operating system (Win/Mac/Linux).
2. Install [git](#) for your operating system (Win/Mac/Linux).
3. Check that `node` and `git` are installed. Open a terminal (for [MacOS](#) or [Windows](#)) and type:

```
node --version
```

You should see something like: v10.16.0

```
npm --version
```

You should see something like: 6.9.0

```
git --version
```

You should see something like: git version 2.22.0.windows.1

Note: For Windows, Git-Bash (installed with git) is the recommended terminal. You can open it from the Start menu.

## Installation

1. Download the [nodegame installer](#).
2. Open a terminal and navigate to the folder where you downloaded the installer.
3. Install nodeGame with the command:

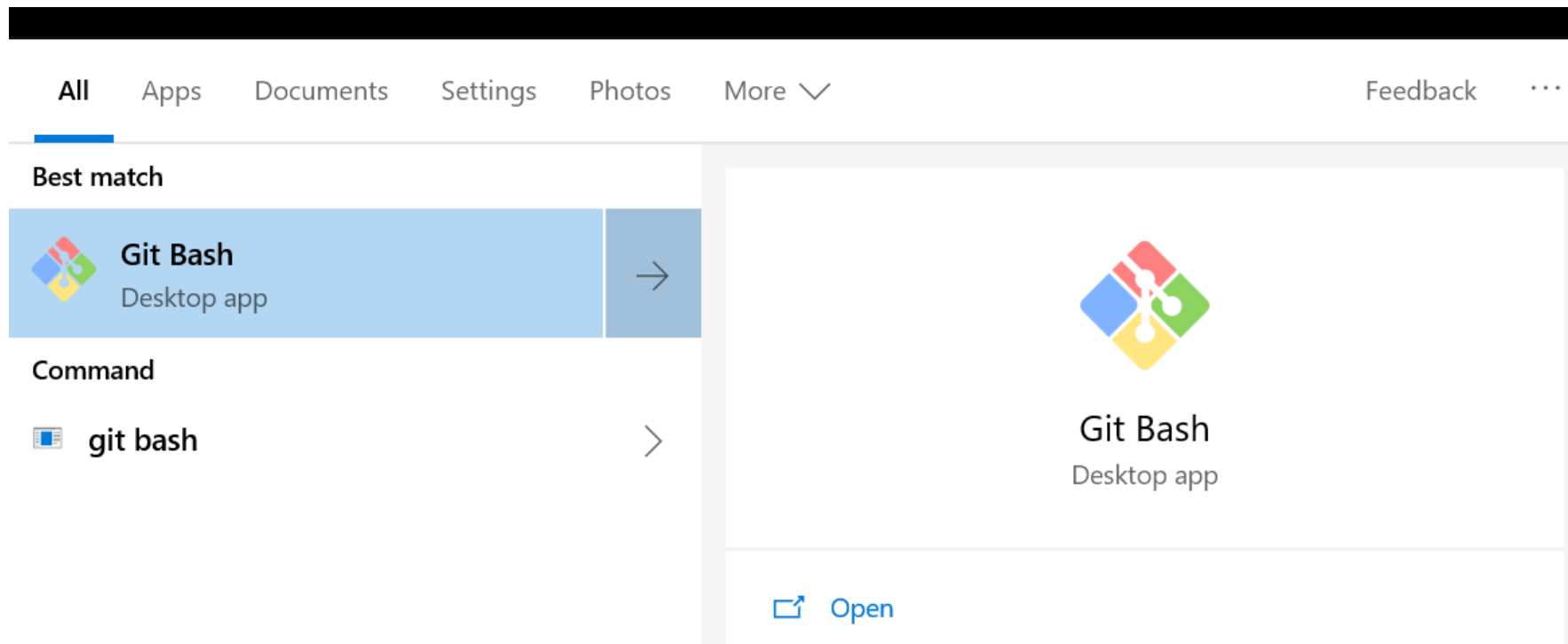
- Save the installer inside the folder where you want to install nodeGame
- Now it is time to learn how to use a **Terminal**.

# The Terminal

The terminal is a window in which you can type in commands that are interpreted and executed by your machine.

- Windows: Git Bash
- Mac / Linux: Terminal

[Check the slide deck about "Using the Terminal"](#)



# Installing and Launching nodeGame

# Installing NodeGame



Go to the directory where you have downloaded the nodegame installer

Check that Node.JS is correctly installed (version > 10)

```
balistef@mzes072 MINGW64 /tmp
$ node --version
v10.16.0
```

Install nodeGame

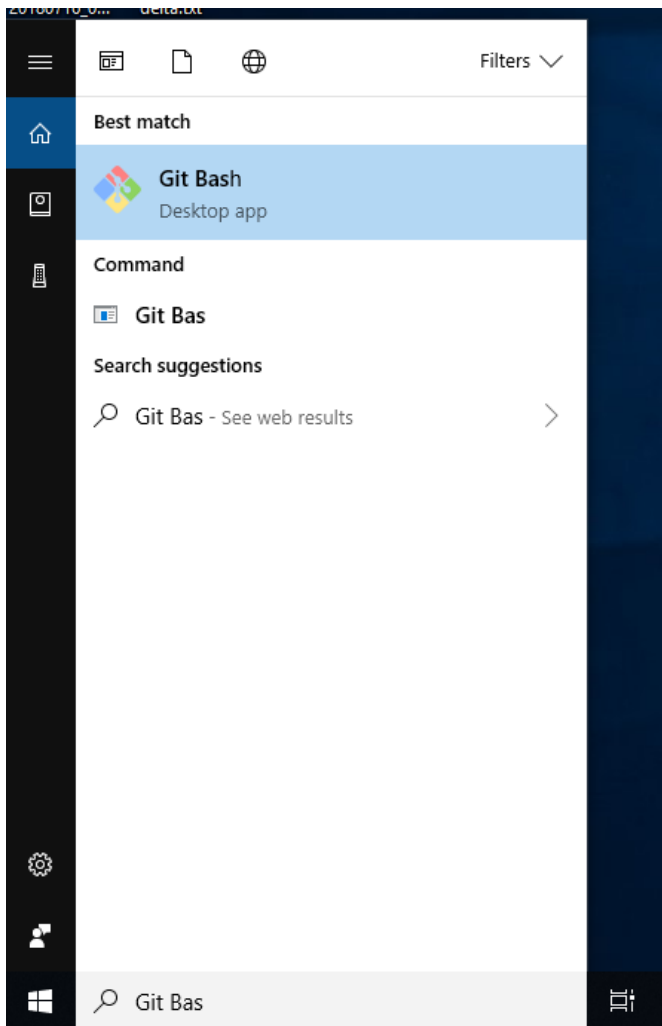
**@dev is important to install the latest features that will use in this class**

```
balistef@mzes072 MINGW64 /tmp
$ node nodegame-installer.js @dev
```

# Launching nodeGame



- Go to the directory where you installed nodeGame and launch it



cd = change directory (cd .. = dir up)

Hint! Use TAB to autocomplete the name of files

ls = list

node = type to launch Node.JS programs

```
stbaliel@STBALIET MINGW64 ~
$ cd www/nodegame-v4.3.2/

stbaliel@STBALIET MINGW64 ~/www/nodegame-v4.3.2
$ ls
bin/          games/          launcher.js    node_modules/  README.md
CHANGELOG    games_available/ LICENSE        package.json   test/
conf/        git-hooks/     log/          private/

stbaliel@STBALIET MINGW64 ~/www/nodegame-v4.3.2
$ node launcher.js
nodeGame v.4.3.2
Requirements room created: ultimatum
```

Note! Your version and installation path may be different

Ctrl-C to quit the server

# The localhost Address

- After you launched nodeGame with command: `node launcher.js` open your browser at the address:

`http://localhost:8080`

**ADDRESS**

**YOUR OWN COMPUTER  
(INSTEAD OF THE INTERNET)**

**PORT**

**A INTERNAL ADDRESS  
WITHIN YOUR COMPUTER  
(THINK IT AS THE DOOR BELL  
IN A LARGE BUILDING)**