

# Intro to Sui Objects

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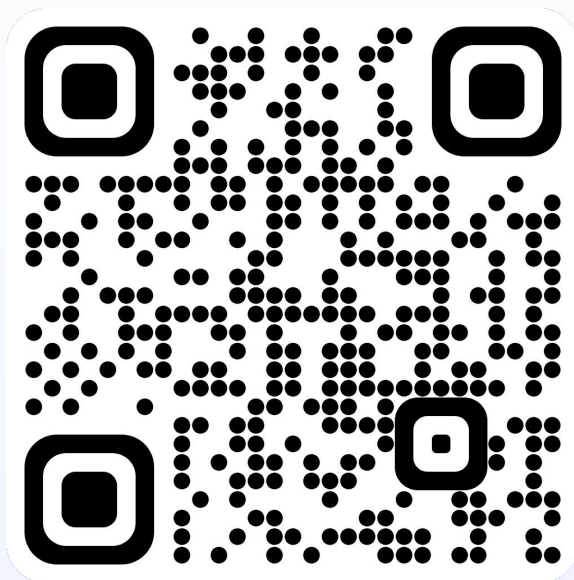
**Mysten**Labs

# Workshop Outline

- Sui Object Basics
- Environment Setup and Tools
- Basic NFT Contract Demo
- Parent Child Objects Demo
- Access Control and Paid Mint Demo

## Main Repo for the Workshop

- [https://github.com/hyd628/sui\\_intro\\_workshop](https://github.com/hyd628/sui_intro_workshop)



# Sui Object Basics

**In Sui, Every Object is an NFT**

# Sui Modules and Immutable Objects

- A module in Sui is an immutable object and will have an object ID
- Immutable objects can be used by anyone, so all modules in Sui are public/can be used by anyone
- To use the Sui CLI to publish a module:
  - `sui client publish --path [filepath to the module] --gas-budget [sufficient amount of gas]`

# Parent and Child Objects

- An object in Sui can own other objects, those are known as parent objects and child objects
- Using children objects requires passing in its parent object(s)
- References to children objects are represented with the Option type
- A parent object cannot be frozen, wrapped or deleted while it has children objects

# Initializer Function

- A special function that's run exactly once when the module is published
- Serves to initialize the module state and create singleton objects
- Must be named `init`, no parameters other than `TxtContext`, no return values, private



# Shared Object

- An object in Sui can become shared if it's transferred using the ``sui::transfer::share_object`` method
- Anyone can read or write to a shared object
- Shared objects require consensus (Narwhal & Bullshark) to sequence reads and writes
- In other blockchains, every entity is shared by default. In Sui, developers have the choice to make something shared or non-shared.

# Capability

- A design pattern that allows authorizing actions with an object
- Serves a similar purpose as role based access control in Solidity smart contracts
- A capability object generally only has to have one ability: key
- Methods can require passing in the capability object (and consuming it immediately) to enforce access control

# Environment Setup and Tools

# Environment Setup

Package/OS	Linux	macOS	Windows 11
Curl	X	X	X
Rust	X	X	X
Git CLI	X	X	X
CMake	X	X	X
libssl-dev	X		
libclang-dev	X		
Brew		X	
C++ build tools			X
LLVM Compiler			X
Sui	X	X	X

# Install Sui Binaries and CLI

- `git clone https://github.com/MystenLabs/sui.git --branch devnet`
- `git fetch upstream`
- `git checkout devnet-0.10.0`
- `cargo install --locked --git https://github.com/MystenLabs/sui.git --branch "devnet" sui sui-gateway`
- `sui client` (use default options to connect to devnet)

# Tools Used

- Sui CLI (installed with Sui binaries)
- Sui Explorer
  - <https://explorer.devnet.sui.io/>
- VS Code or any other editor

Demo

# Sui Dino NFT Smart Contract (basic version)

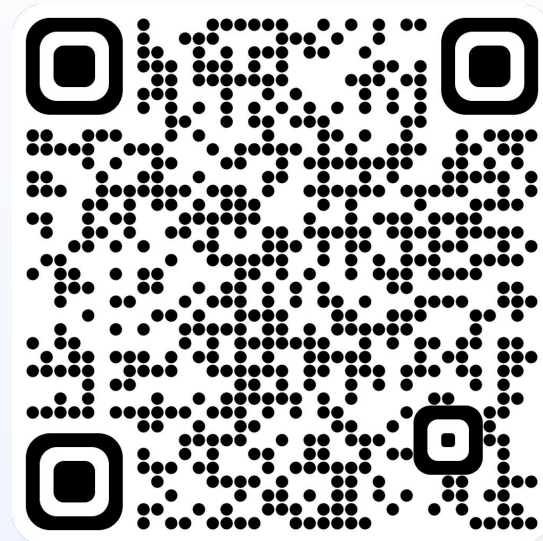
- [https://github.com/hyd628/sui\\_intro\\_workshop/blob/main/sources/sui\\_dinos.move\\_basic](https://github.com/hyd628/sui_intro_workshop/blob/main/sources/sui_dinos.move_basic)





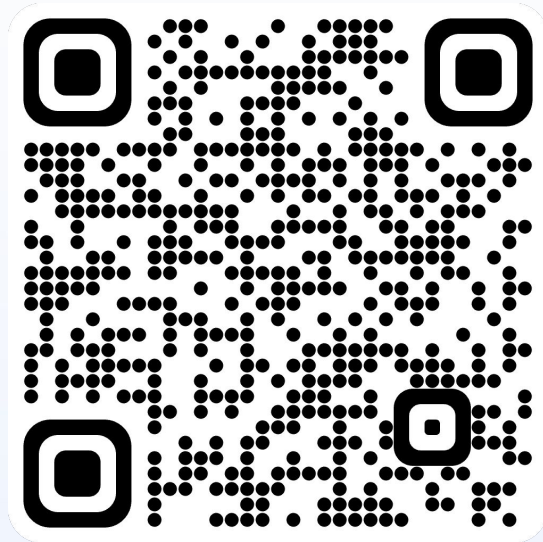
# Sui Dino NFT Smart Contract (child object version)

- [https://github.com/hyd628/sui\\_intro\\_workshop/blob/main/sources/sui\\_dinos.move\\_childobject](https://github.com/hyd628/sui_intro_workshop/blob/main/sources/sui_dinos.move_childobject)



# Sui Dino NFT Smart Contract (access control version)

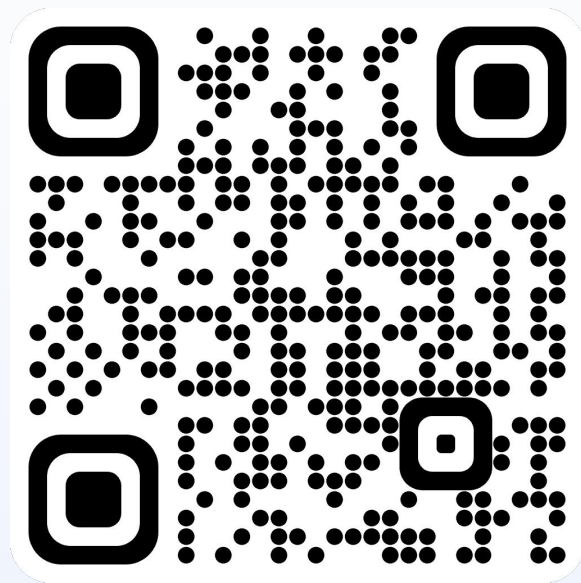
- [https://github.com/hyd628/sui\\_intro\\_workshop/blob/main/sources/sui\\_dinos.move](https://github.com/hyd628/sui_intro_workshop/blob/main/sources/sui_dinos.move)



# Get in Touch

- Discord: <https://discord.gg/GcFNX4WMrB>
- Twitter: [@Mysten\\_Labs](https://twitter.com/Mysten_Labs)
- Developer Docs: <https://docs.sui.io/>
- GitHub:
  - <https://github.com/MystenLabs/sui>
  - <https://github.com/MystenLabs/awesome-move>
  - <https://github.com/move-language/move>
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## Workshop Repo and Slides



# Breakout Coding Session

# Instructions

[https://github.com/hyd628/sui\\_intro\\_workshop#breakout-session-instructions](https://github.com/hyd628/sui_intro_workshop#breakout-session-instructions)

