Control Philosophical Club

- Why some control gurus said that "Li Bing 李冰" was the father of control engineering?
  - Who is "Li Bing"? https://en.wikipedia.org/wiki/Li_Bing
  - What is "Dujiangyan 都江堰"? https://en.wikipedia.org/wiki/Dujiangyan

- Was Michael Jordan an open-loop controller or a closed-loop controller when he shot the basket? WHY?????

- What is learning control? Any examples?
  - How does learning control relate to open-loop control and closed-loop control?

What is "Dujiangyan 都江堰

- The Dujiangyan is an ancient irrigation system in Dujiangyan City, Sichuan, China. Originally constructed around 256 BC by the State of Qin as an irrigation and flood control project, it is still in use today. The system's infrastructure develops on the Min River, the longest tributary of the Yangtze.

都江堰景区游览图
Tourist Map of Dujiangyan Scenic Area

国家级重点风景名胜区
State-level Main Scenic Spot

全国重点文物保护单位
National Protection Unit for Cultural Relics

国家AAAA级旅游区
National AAAA Tourist Destination
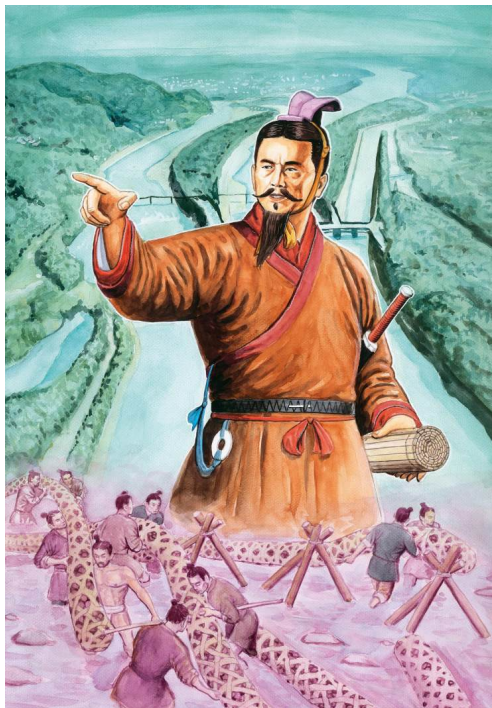
国家级文明风景区
State-level Civilized Scenic Spot

Who is " "?

- A Chinese irrigation engineer and politician of the [Warring States period](), renowned for his association with the [Dujiangyan Irrigation System](), the construction of which he instigated and overseen. Because of the importance of this 2000-year-old [irrigation]() system to the development of [Sichuan]() and the [Yangtze River]() region, Dujiangyan is still in use today and is listed as a [UNESCO]() [World Heritage Site]().

Who is Michael Jordan?

- Michael Jeffrey Jordan, also known by his initials, MJ, is an American former professional basketball player. He played 15 seasons in the National Basketball Association for the Chicago Bulls and Washington Wizards. Wikipedia
- **Born**: February 17, 1963 (age 55 years), Brooklyn, New York City, NY
- **Height**: 6' 6"
- **Net worth**: 1.7 billion USD (2019)
- **Spouse**: Yvette Prieto (m. 2013), Juanita Vanoy (m. 1989–2006)
- **Did you know**: Michael Jordan ranks 10th among NBA players with most championships (6 total championships won). wikipedia.org
- Quotes

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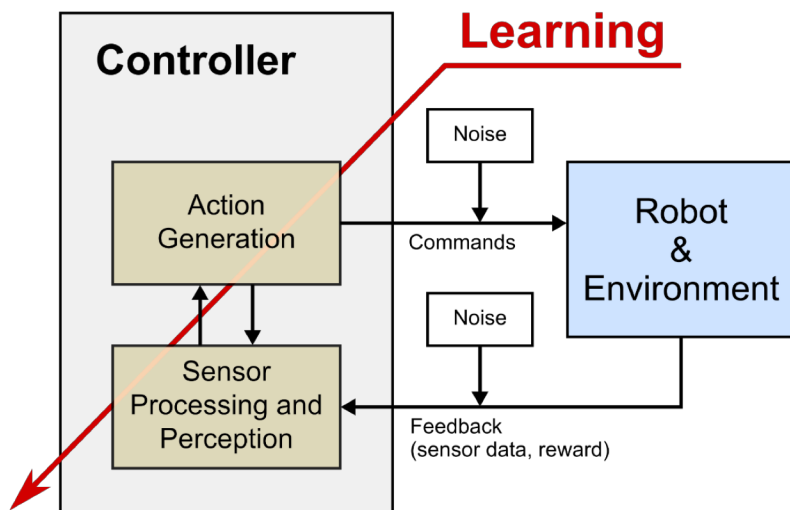# Is Michael Jordan an open-loop controller?

Yes – because …

No – because …

Is Michael Jordan a closed-loop controller?

Yes – because …

No – because …

What is learning control?

Learning

Controller

- Action Generation
- Sensor Processing and Perception

Commands

Noise

Noise

Robot & Environment

Feedback (sensor data, reward)

- Iterative Learning Control (ILC) is a method of tracking control for systems that work in a repetitive mode. Examples of systems that operate in a repetitive manner include robot arm manipulators, chemical batch processes and reliability testing rigs. In each of these tasks the system is required to perform the same action over and over again with high precision. This action is represented by the objective of accurately tracking a chosen reference signal r(t) on a finite time interval.

How does learning control related to open-loop control and closed-loop control?

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