



# *ROBOTSIC*

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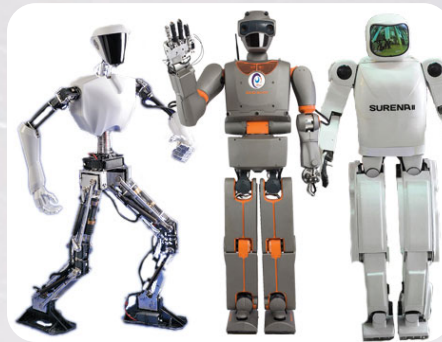
Presenter: Dr. Tahir Aziz  
Email: [taziz@lbcc.edu](mailto:taziz@lbcc.edu)  
CSUDH  
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# What is a Robot?

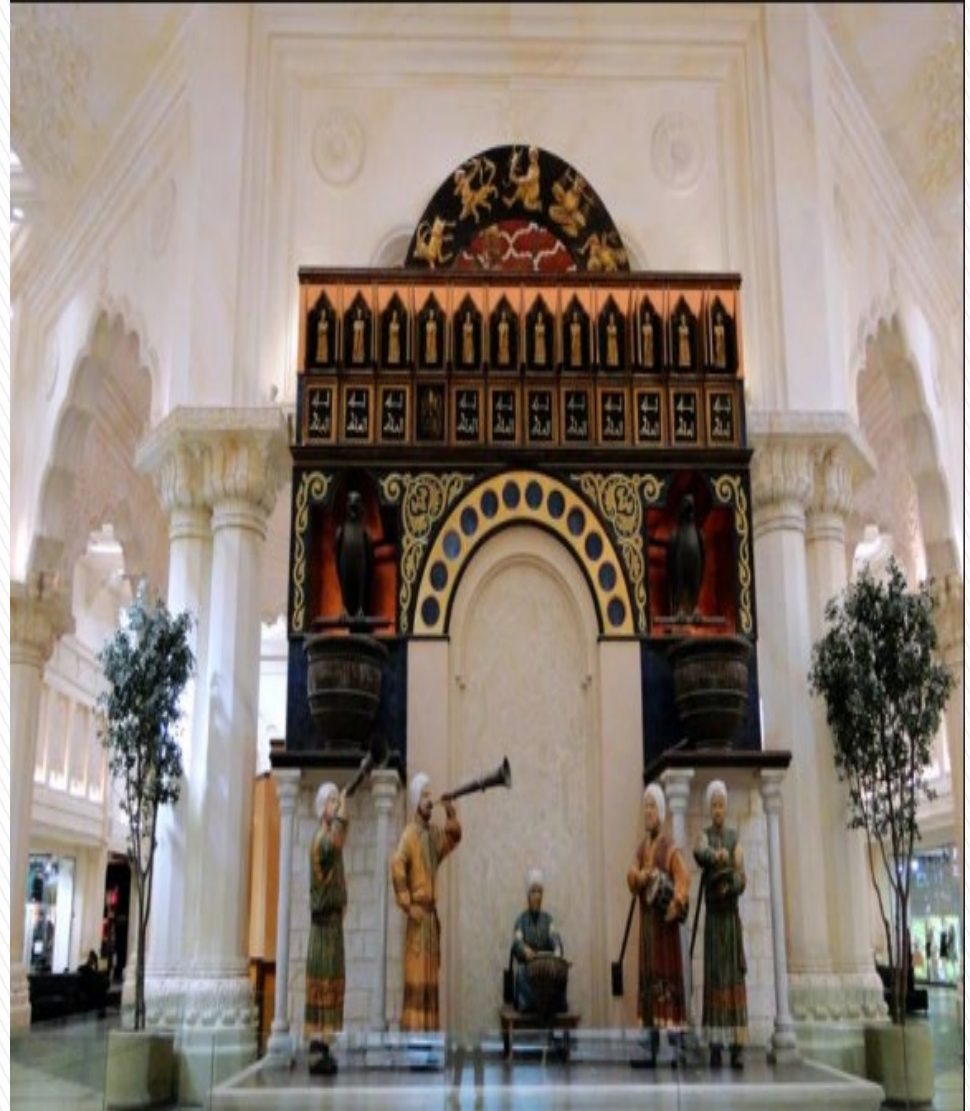
A re-programmable, multifunctional, automatic industrial machine designed to replace humans.

- An automatic machine sweeper, Roomba
- An autonomous car
- A machine removing mines in a war field
- In space
- In military, Drones



# Water Clock and Robotics

- ▶ 12<sup>th</sup> Century Inventor, Al-Jazari, Father of Robotics
- ▶ At each hour, different figure movements.
- ▶ Every three hours robotic musicians would blow trumpets, play drums and strike cymbals.





A decorative graphic on the left side of the slide featuring a vertical arrangement of stylized, glowing blue roses and swirling vine-like patterns.

# The Word “Robotics”

- Czech writer, Karel Capek introduced the word “Robot” in his play R.U.R. (Rossum's Universal Robots), in 1920.
- The word "robotics", introduced by the Russian–American scientist, Isaac Asimov in 1940s.
- Autonomous robots by William Grey in 1948.
- In 1954, George Devol invented a digital and programmable robot and called it “Ultimate.”

# Laws of RoboticsRobotics

Asimov also proposed his three "Laws of Robotics", and he later added a "zeroth law".

**Zeroth Law:** A robot may not injure humanity, or, through inaction, allow humanity to come to harm

**First Law:** A robot may not injure a human being, or, through inaction, allow a human being to come to harm, unless this would violate a higher order law

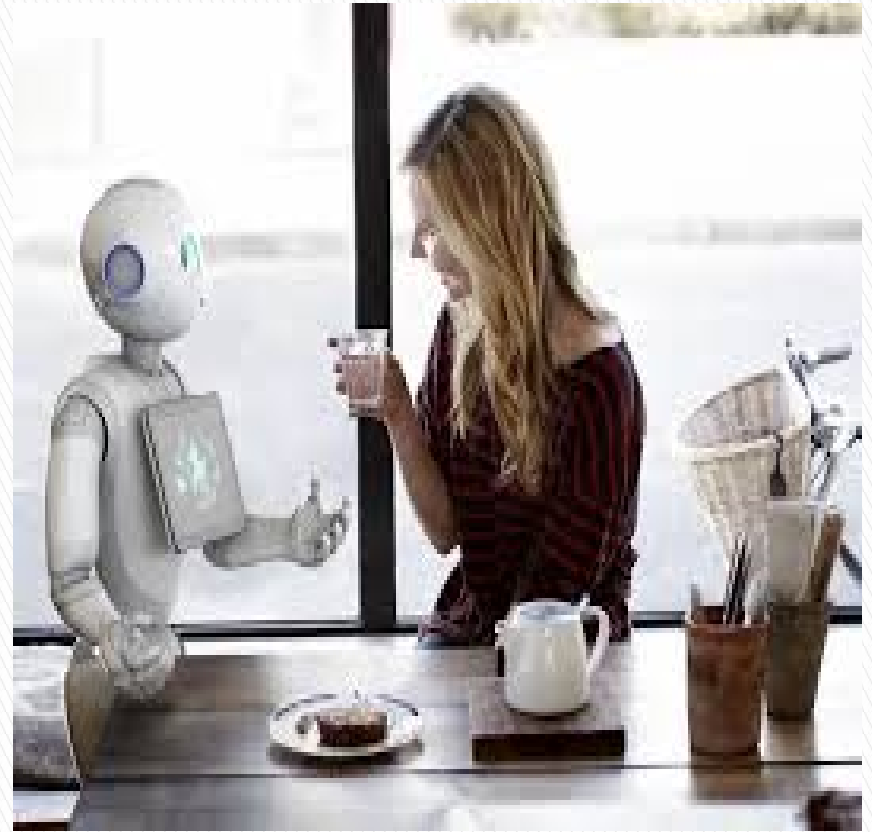
**Second Law:** A robot must obey orders given it by human beings, except where such orders would conflict with a higher order law

**Third Law:** A robot must protect its own existence as long as such protection does not conflict with a higher order law.

# NAO and Pepper



NAO



Pepper

# Humanoid Robots



Jai Jai Robot



Scarlett Johansson Robot

# Robotic Wedding



**A humanoid robot named "I-Fairy" acting as a witness at the wedding ceremony between Tomohiro Shibata and Satoko Inoue in Tokyo in 2010. The couple decided to use the robot, which conducted the ceremony with its audio functions, from Inoue's company to perform the witness' duties as they first met because of common work interest related to robots. REUTERS/Yuriko Nakao**



# NAO Demonstration

# References

- ▶ [www.RobotLAB.com](http://www.RobotLAB.com)
- ▶ <https://www.robotlab.com/store>
- ▶ <https://www.softbankrobotics.com/emea/en/nao>