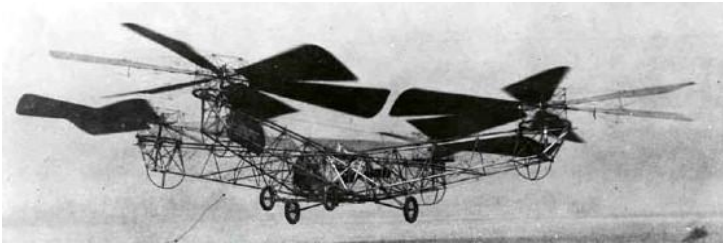# Polly want a Cracker

*About the AR.Drone Parrot
and other quadrotors*
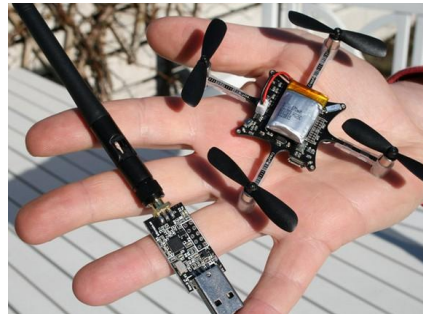
Dustin Webb

What is a quadrotor?

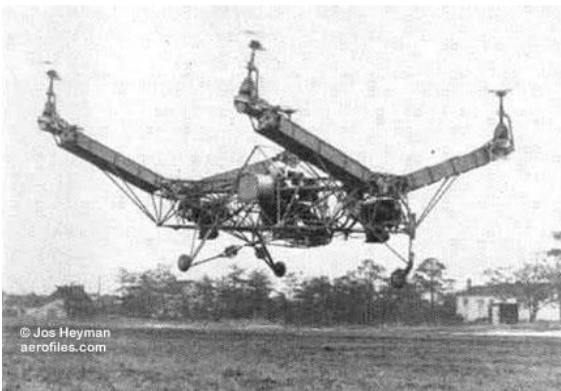"A quadrotor, also called a quadrotor helicopter or quadrocopter, is an aircraft that is lifted and propelled by four rotors." http://en.wikipedia.org/wiki/Quadrotor

Oeminchen No. 2, 1922

Crazyflie

HyTAQ

Convertawings Model A, 1956

AR.Drone Parrot

B the Flying Car

How do they fly?

Newton's Third Law!
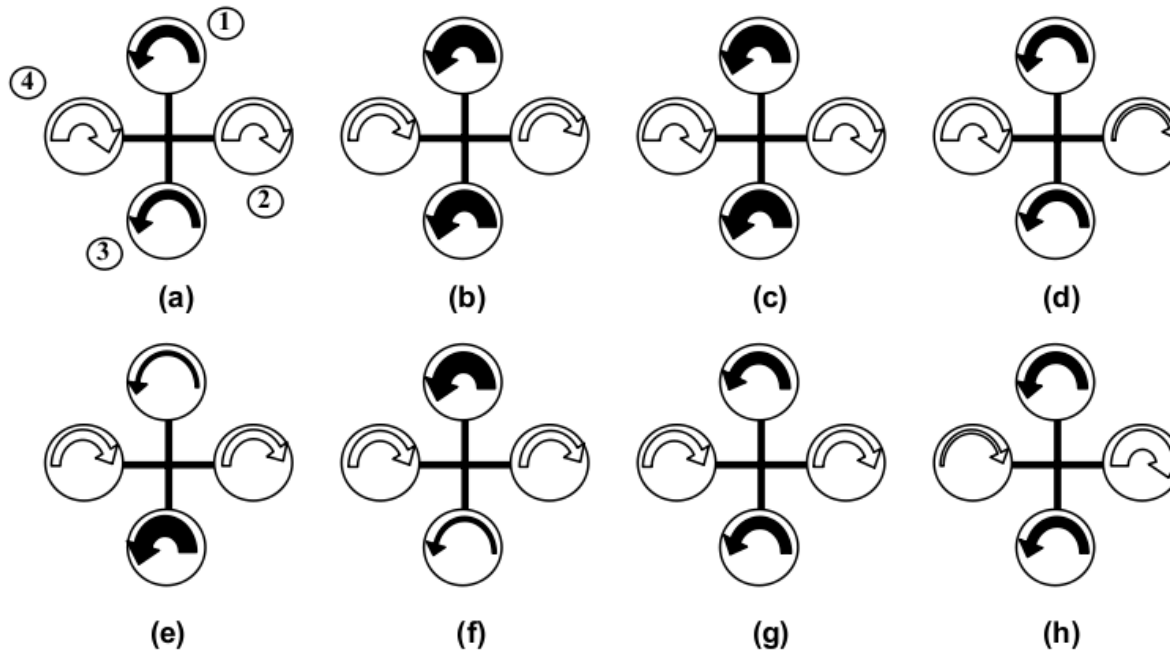
(a)	Yaw (anticlockwise direction)	(e)	Pitch (anticlockwise direction)
(b)	Yaw (clockwise direction)	(f)	Pitch (clockwise direction)
(c)	Take-off or take-up	(g)	Land or take-down
(d)	Roll (clockwise direction)	(h)	Roll (anticlockwise direction)

Computer & Sensors

- 3 Axis Accelerometer - Linear Change
- 3 Axis Gyroscope - Rotational Change
- Barometric Pressure - Altitude
- Cameras
  - Downward facing and low res
  - Forward facing HD

Control Methods

- Radio Control (RC)
- Autonomous control
  - ROS
  - Mavlink
  - Custom

Why?

- Games
- Entertainment
- Food delivery
- Video
  - Journalism
  - Athelete Tracking
- Search and Rescue
- Military
- Research

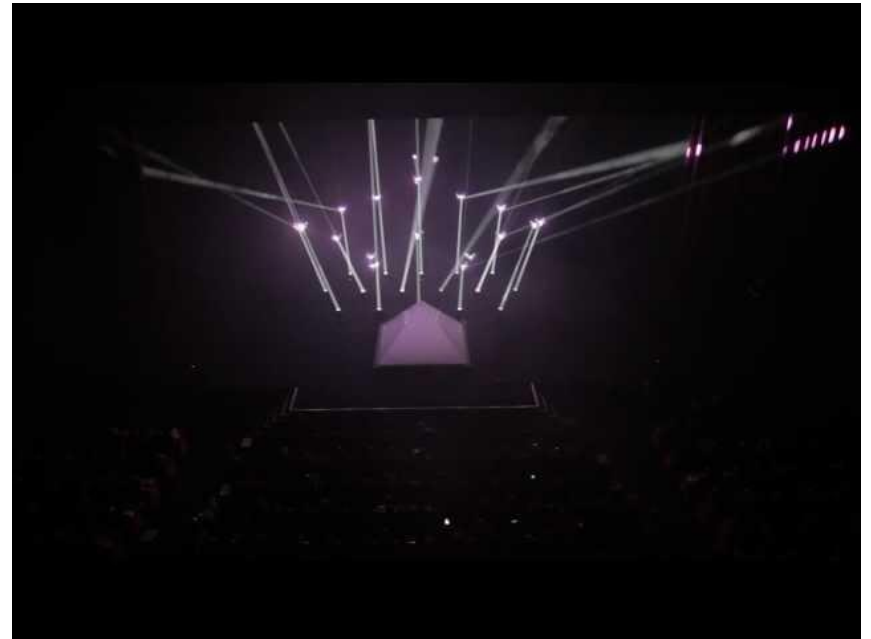# Games

Dog Fighting ↑

Aliens Attack ↑
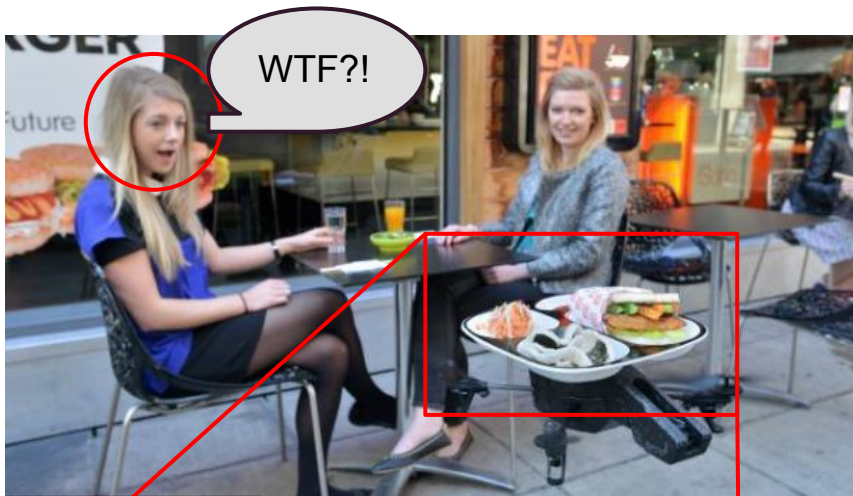

Racing →

Entertainment

GRASP Lab - James Bond

Meet Your Creator

Food Delivery
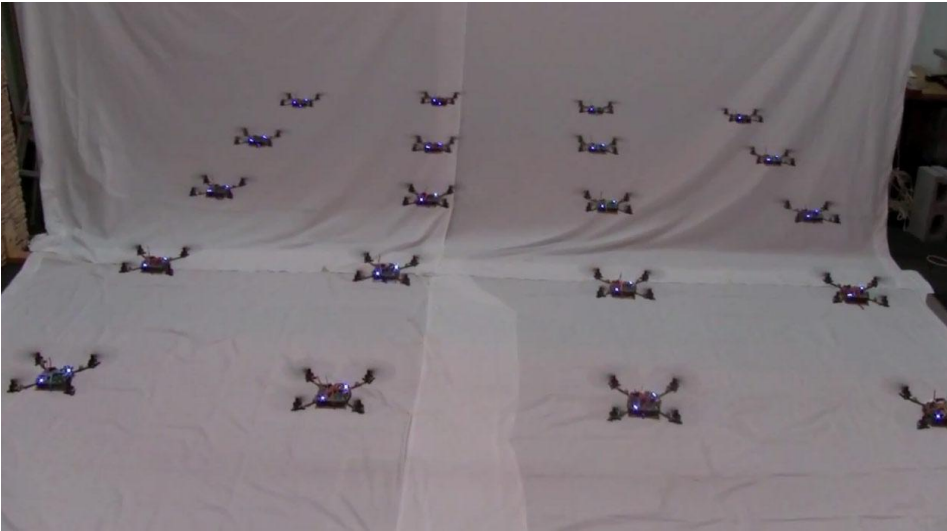
Video

Journalism

Video

Athlete Tracking

Search & Rescue

Swarms for:
- Survivor identification
- Temporary Cell System

Iranian Life Preserver Drone
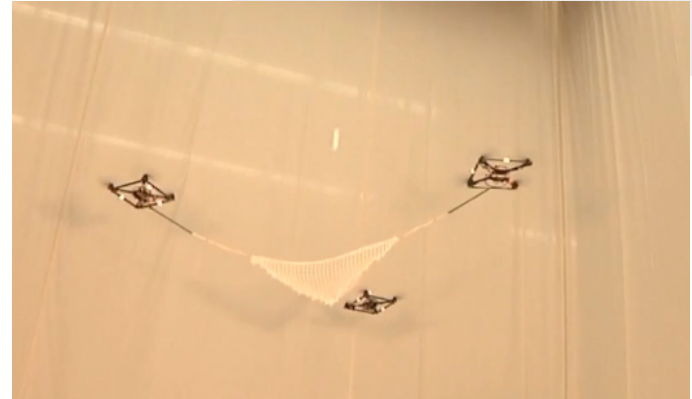
Military

Surveillance
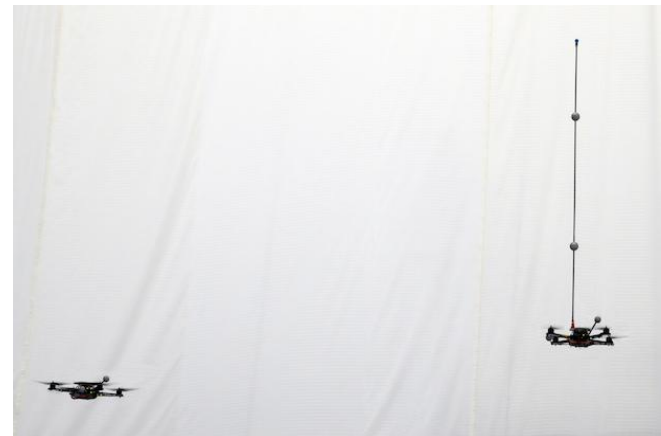

Hmmmmm

Bell-Boeing - Transport

Research

Mind control -- err, um, Brain Computer Interface
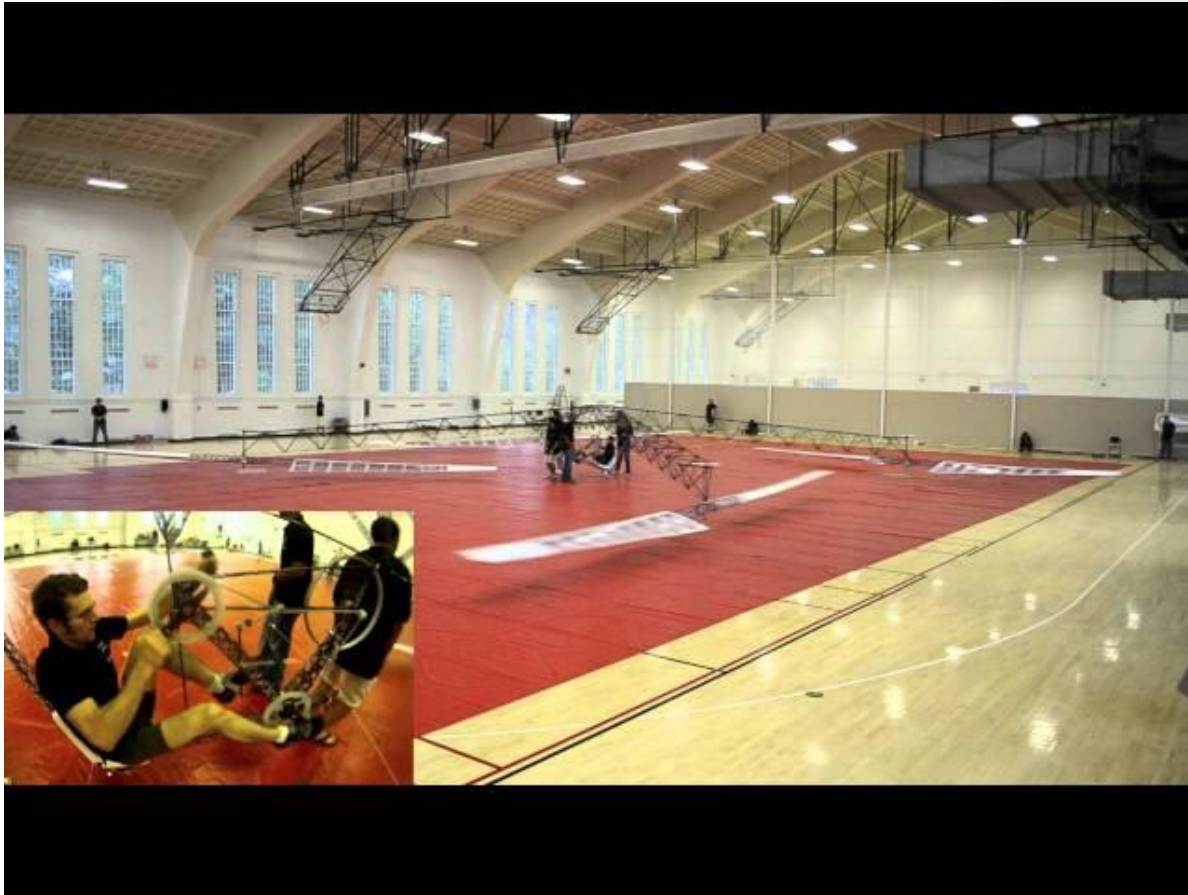

Motion Planning & Cooperation

Innovative Mechanical Designs
Telerobotics Lab, UofU

Control & Cooperation

Research?

Gamera 2 - World record flight at 50 seconds

Why not?!

Power - The bane of robotics...

I want one!

- AR.Drone Parrot
  http://ardrone2.parrot.com
- ArduCopter
  http://store.3drobotics.com
- KickStarter
  - B the flying Car
    http://www.kickstarter.com/projects/2017062404/b-go-beyond
  - Spiri
    http://www.kickstarter.com/projects/914887915/spiri
  - Many more!

Related

- Tricopters
- Hexarotors
- Octorotors

Is he seriously trying to start that thing?!