COMP9336/4336 Mobile Data Networking
www.cse.unsw.edu.au/~cs9336 or ~cs4336
Redirected to ***Moodle***
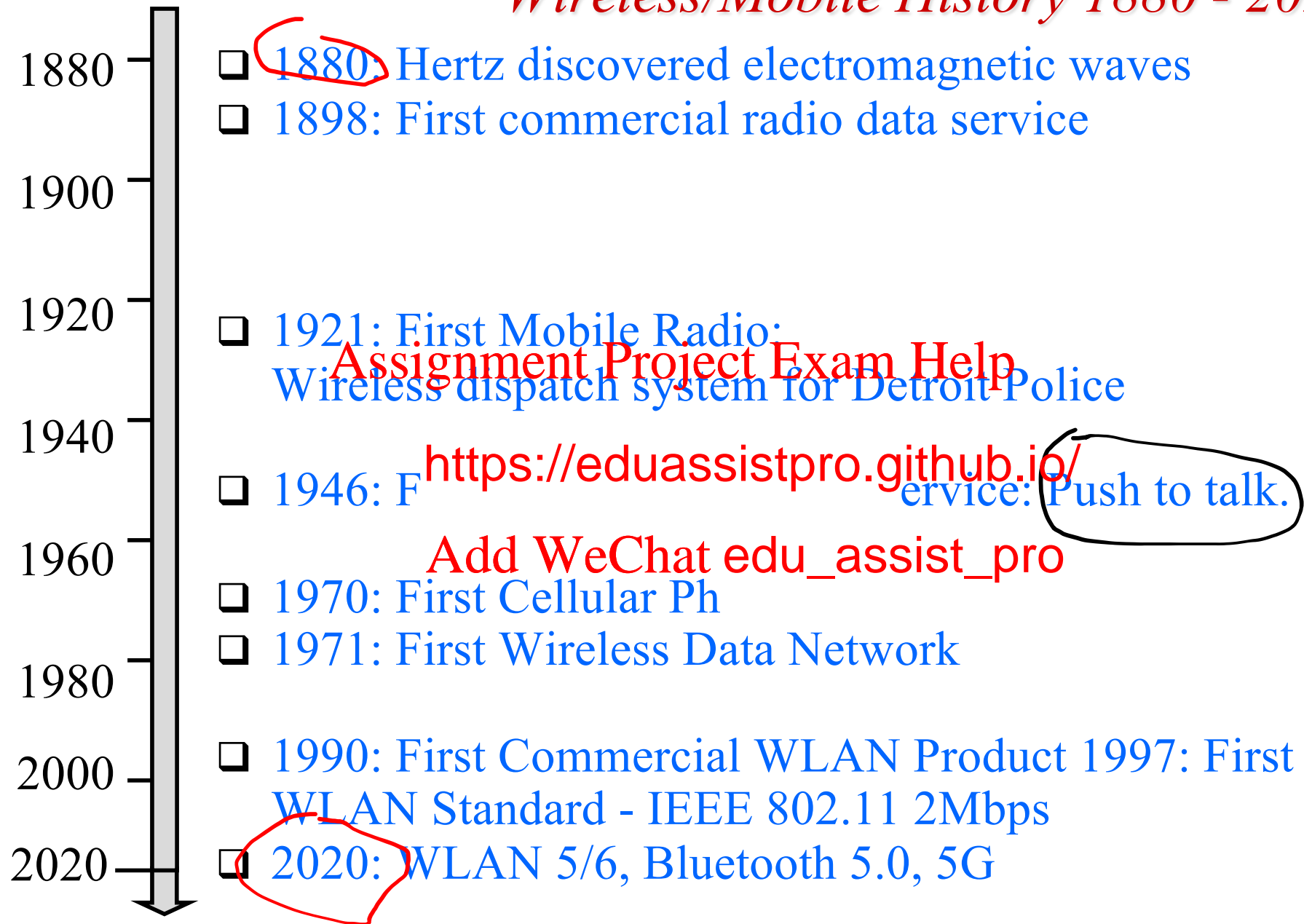
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Tren

in Mobile Data Networking

Wireless/Mobile History 1880 - 2020

- 1880: Hertz discovered electromagnetic waves
- 1898: First commercial radio data service
- 1921: First Mobile Radio: Wireless dispatch system for Detroit Police
- 1946: F ervice: Push to talk.
- 1970: First Cellular Ph
- 1971: First Wireless Data Network
- 1990: First Commercial WLAN Product 1997: First WLAN Standard - IEEE 802.11 2Mbps
- 2020: WLAN 5/6, Bluetooth 5.0, 5G

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Access is all wireless

- Wireless, in the form of WiFi, started in 1999.
  - First it was an option.
  - Now it is standard in all computing devices

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- Most of the acc   ity) is wireless

- Mobile phones, https://eduassistpro.github.io/
technologies: WiFi, Bluetooth,   t *no wired*
connectivity

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3 most used wireless technology

Wired · Wireless storage

Wireless Display
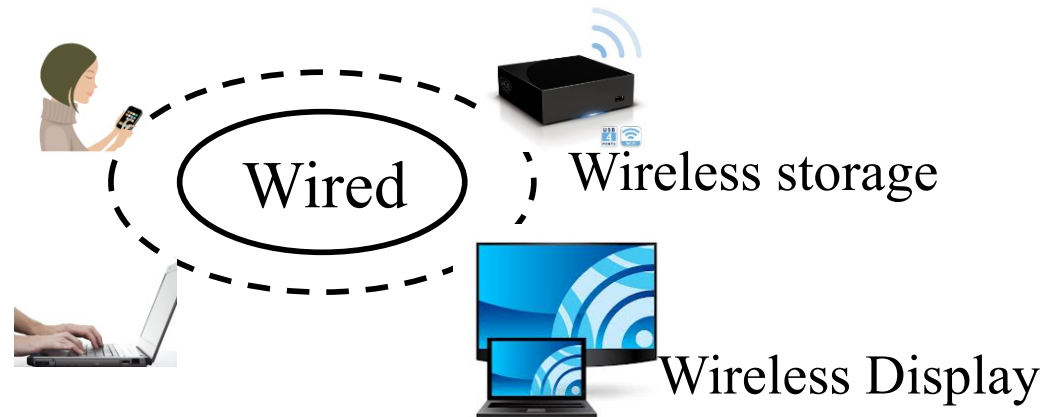
Most Revenue in Wireless

❑ US Wireless industry is valued at \$195.5 billion ≥ publishing, agriculture, hotels and lodging, air transportation, and motion picture and recording.

❑ Wireless industry directly/indirectly provides more than 2.6% of all US employment

❑ Wireless revenue i

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Ref: http://www.ctia.org/your-wireless-life/how-wireless-works/wireless-quick-facts

http://atlantic-acm.com/index.php?option=com_content&view=article&id=557%3Avisual-dataline-us-telecom-wireless-and-wireline-service-revenues-2010-2015&catid=46%3A2010-datalines&Itemid=20

Mobile speed forecast

CISCO annual report 2018-2023

- **Wi-Fi speed will triple by 2023**. Globally, the average Wi-Fi speeds will grow from 30.3 Mbps in 2018 to 92 Mbps by 2023.
- **Cellular speeds will more than triple by 2023**. The average mobile network connectio 18 and will be 43.9 Mbps by 2023.
- The average 5G connection speed w Mbps by 2023.

The incredible momentum of WiFi
CISCO report

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- **Wi-Fi hotspots will grow four-f** Add WeChat edu_assist_pro **018 to 2023**. Globally, there will be nearly 6 ublic Wi-Fi hotspots by 2023, up from 169 million hotspots in 2018.

- **Wi-Fi6 hotspots will grow 13-fold from 2020 to 2023** and will be 11 percent of all public Wi-Fi hotspots by 2023.

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Bluetooth revolution

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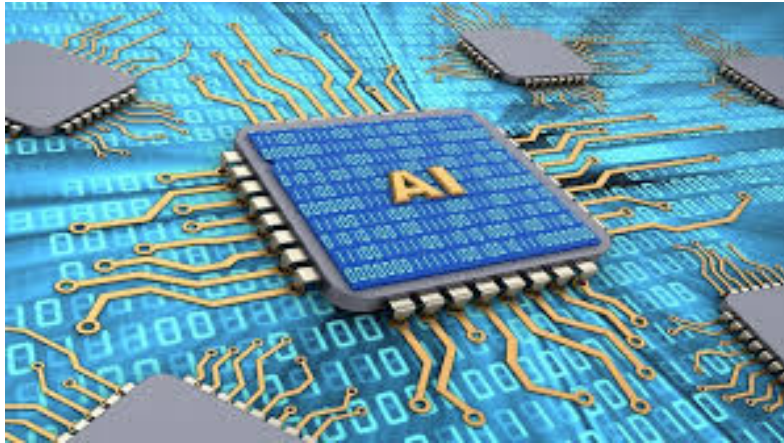
Other trends
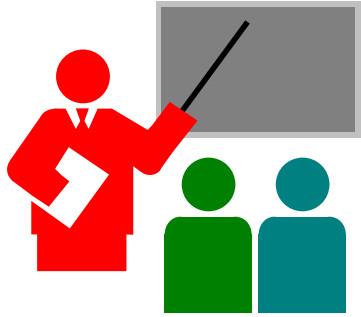# New developments

- AI (artificial intellig
- Sensor-aided mobile
- Drone-aided mobile networking
- Programmable wireless environment
- Simultaneous wireless information and power transfer
- Terahertz wireless networking
- Nanoscale wireless sensor networking
- …

Summary: wireless and mobile trends

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1. WiFi has grown worldwide in just 15 years and continues to develop in capacity with innovations in PHY and data link layer

2. Bluetooth has reac   2020

3. 5th generation of ce   ere in 2020 with massive capacity and new features

4. Wireless speed growth is following Moore's Law

5. Mobile subscriptions are approaching world population

6. Many innovative new technologies are being developed to meet the unabated demand in wireless and mobile communications

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