# 電気工学特別講義
# 2021年6月22日分
# イントロダクション

# OU EE ES Lecture Series

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# Lecture introduction

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22-JUN-2021
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On the internet
@jj1bdx



# CAUTION

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# COVID-19 has changed everything ... and is still there!

The Digital Divide has become irrelevant

# The Physical Divide

# The Physical Divide [1]

Digital is now cheap, it's physical that is expensive.
70 years ago the cost of putting a bunch of transistors on a chip was astronomical. Now that’s cheap. What’s expensive is putting a bunch of people in a room.

*— Balaji S. Srinivasan*

[1] https://twitter.com/balajis/status/1247518697385684992?lang=en

# Digital-first society has come
# Internet is infrastructure
# Software builds the world

# In the meanwhile:
# Oppressions everywhere by people with power to enslave oppressed people


BLACK LIVES MATTER
THE NEW 42ND STREET
RISE UP!

# Safety first

# Stay alive

# Don't be a slave

# Who I am
# 自己紹介

# Professional Internet Engineer

# 技術士（情報工学部門）
# 力武健次技術士事務所 所長
## 情報処理安全確保支援士

# Guest Researcher
Pepabo R&D Institute
GMO Pepabo, Inc.
GMOペパボ株式会社
ペパボ研究所 客員研究員

ペパボ研究所
Pepabo R&D Institute, GMO Pepabo, Inc.

# My career

Erlang, Elixir, C, FreeBSD, Linux, TCP/IP, PHP, mruby, Lua, C++, C#, Visual Studio, Moodle, macOS, Windows, Vim, Emacs, VS Code, Arduino, AVR, radio engineering, music, distributed systems, fault tolerance, software defined radio, whatever.

31 years in Computer Science, 16 years since PhD, 45 years of ham radio op as @jj1bdx, 2010-2012: Professor, ACCMS/IIMC, Kyoto University, whatever.

Past records are meaningless, unless:
*you work on what you really want to do now*

Ignore past achievements

# Focus on *now*

# Ignore everybody

## to stay creative and maintain originality

Lecture theme:

# Information delivery on internet

In other words:

# How internet works

# 容錯設計

# Fault-tolerant design

# Modern life is full of failures

## How internet works under failures?

# Technology 1:
# Packet switching

# Technology 2:
# Flexible packet routing

Technology 3:

# Centralization, and: decentralization

# Topic sections (1/3)

- Latency and Laws of Physics
- Centralized communication
- Multiplexing
- Packet switching
- Routing basics

# Topic sections (2/3)

- IP addresses
- Routing in details
- Network transports
- Cloud computing basics
- Social implication of cloud computing

# Topic sections (3/3)

- Network fault-tolerance
- Network services and programming trends
- Wireless/radio and internet
- Reference books
- Career choice

Summary:

# Divide data into packets
# Route flexibly and wisely
# Decentralize and distribute

# OK let's get down to business!

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