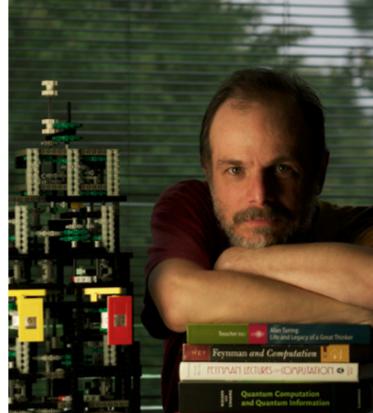
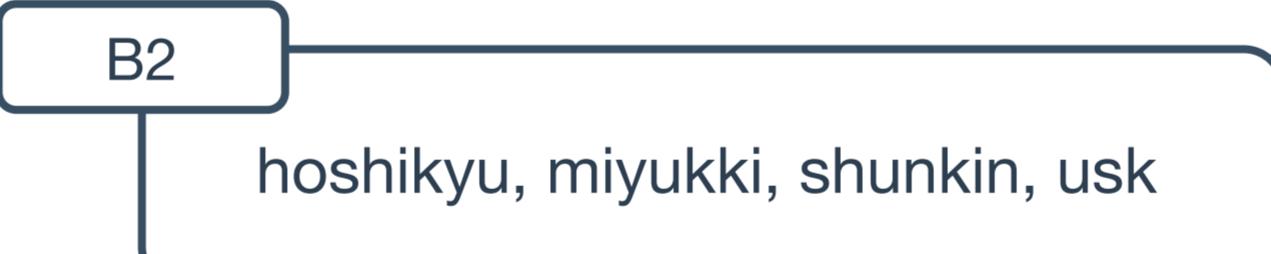
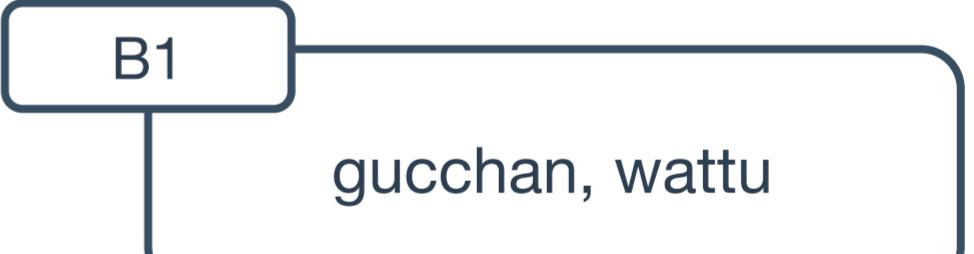


# Arch

Computer architecture  
Software architecture

We propose, build and manage the next-generation network architecture and computer architecture. Our research topics are construction of the hardware system which anyone can reproduce, Precise communication delay measurement, Development of the parallel programming language, Visualization of the information and so on.

## Member

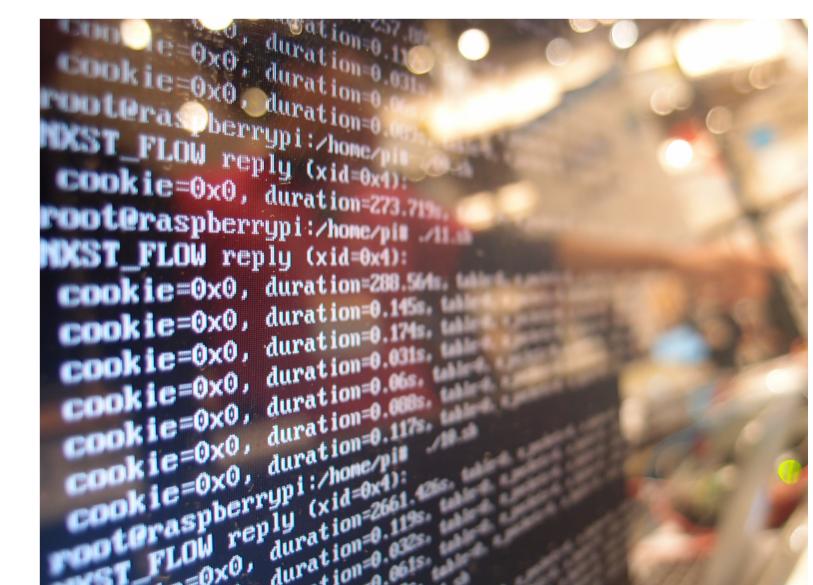
 <b>Faculty</b> Osamu Nakamura osamu Web, IPv6, Wireless	 <b>Faculty</b> Rodney Van Meter rdv Quantum Computing	 <b>Doctor</b> Takeshi Matsuya macchan Network Environment by FPGA
 <b>Doctor</b> Yohei Kuga sora Network Measurement	 <b>Master</b> Takuya Shibuta bhangra Network Routing	 <b>B3</b> Toshinari Takahashi seibe Visualization of Low Level Layer Technology
 <b>B3</b> Atsuki Demizu demmy Programming Language	 <b>B3</b> Ryutaro Ono ryuu FPGA	 <b>B2</b> Kotaro Oki kucats Distributed Computing
 <b>B2</b> Masahiko Hara pasora Computing	 <b>B2</b> Reo Nakayama leopon Web	 <b>B2</b> Shingo Sato hal Parallel Computing
 <b>B2</b> Naohiro Okada naohiro ( to be determined )	 <b>B2</b> hoshikyu, miyukki, shunkin, usk	 <b>B1</b> gucchan, wattu

## Research

### EtherPIPE: an Ethernet character device for network scripting

Yohei Kuga, Takeshi Matsuya, Hiroaki Hazeyama, Kenjiro Cho, Osamu Nakamura

The UNIX command tools are designed to combine simple generic commands to accomplish various complex tasks. Meanwhile, in network programming, we often end up writing many similar functions and packaging functions of all network layers to build an application. We propose EtherPIPE, a character network I/O device, that allows the programmer to access network traffic data as a file through UNIX commands. By setting a UNIX pipe “|” from or to EtherPIPE’s output or input with UNIX commands, packets can be easily processed, executing functions such as packet filtering, packet capturing, generating arbitrary packets, and rewriting header information.



### Realizing a Low Latency Video Conference System

Yuta Tokusashi, Takeshi Matsuya

True real-time communication on the Internet is not possible due to the latency caused by the software video codec. We propose a low latency video conference system which processes everything on hardware. In this method, the system processes everything on FPGA, including the processing of the network protocol stack. As a result, we achieved 650μsec latency on encoding and decoding of the video and processing of network.

