

CCL Winter Camp Plan

March, 5-6th, 2014

Daikura Ski Resort – Minami Aizu, Fukushima

Content

Overall Schedule.....	2
Room and Services at the Hotel.....	4
Estimated Cost.....	4
What to Bring?.....	4
Work Assignments for Operation of Presentation Session.....	4
Skiing Courses and Map.....	5
Presentation Schedule.....	6-9

Contact

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Sally:
Hotel: 0242-64-2011

Overall Schedule

Date and Time: From Wednesday, March 5th, to Thursday, March 06th

Venue: Daikura Ski Resort Hotel, Minami Aizu, Japan

<http://www.daikura.net/resort/index.html>

Attendances: Professor(s): Prof. Pham

Students: 12

Time	Activities	Place	Note
First Day - Wednesday, March 5th			
8h30	Gathering	Aizu-Wakamatsu Station	Please go to the station by your way and be on time
9h00	Leave for Aizutajima station	Aizu-Wakamatsu station	Ticket fare: 1610¥
9h58	Arrive at Aizutajima station	Aizutajima station	58 mins on the train
10h05	Leave for Daikura Hotel	Aizutajima station	By hotel's car
10h30	Arrive at the Hotel	Daikura Hotel	
10h40	Gathering and baggage check in	Hotel's reception desk	
11h00	Renting ski equipment	Santa House	
12h00	Time to enjoy skiing (1 st)	Ski area	Optional activity
16h00	Come back hotel and check in	Hotel	
16h30	Free time		
19h00	Dinner	Hotel's restaurant	Drink is not included
22h00 ~	Sleeping time		
Second Day – Thursday, March 6th			
6h30	Wake up and have personal activities		
7h10	Breakfast	Hotel's restaurant	
7h45	Cleaning and check out		
8h00	Preparing for presentation	Hotel's conference room	

8h15	Academic presentation		12 x 15 minutes + 60 minutes extra
12h30	Lunch time	Ski center's restaurant	
13h45	Gathering, packing up	Hotel	
13h55	Leave for Aizutajima station	Hotel	By hotel's car
14h21	Leave for Aizuwakamatsu station	Aizutajima station	Next train: 15h38
15h27	Arrive at Aizuwakamatsu station		
15h40	ONSEN	ONSEN spot near the station	
16h40	END		

Room and services at the hotel

- There are 6 rooms in total (all in western style). They are allocated as follows:
 - Professor Pham
 - Sally
 - Abdoulaye, Duy, Dung
 - Thanh, Phuc, Duc
 - Hung, Ngoc Anh, Bach
 - Vuong, Huong
- Dining
 - Breakfast and dinner are included.
 - For lunch we have to take care our self. At ski center's restaurant, one meal costs around ¥800.
- Bathing: Public OFURO

Estimated cost

- **Travel (by train)**
 - Aizu-wakamatsu station ⇔ Aizu-tajima station: 2 x ¥1,610
- **Accommodation**
 - ¥8,400/1 person
- **Skiing - Snowboarding (Optional)**
 - Ski set: ¥3,000/person
 - Wear: ¥3,000/person
 - Lift ticket: ¥2,200/ 1 person for haft day and ¥2,500/1 person for whole day

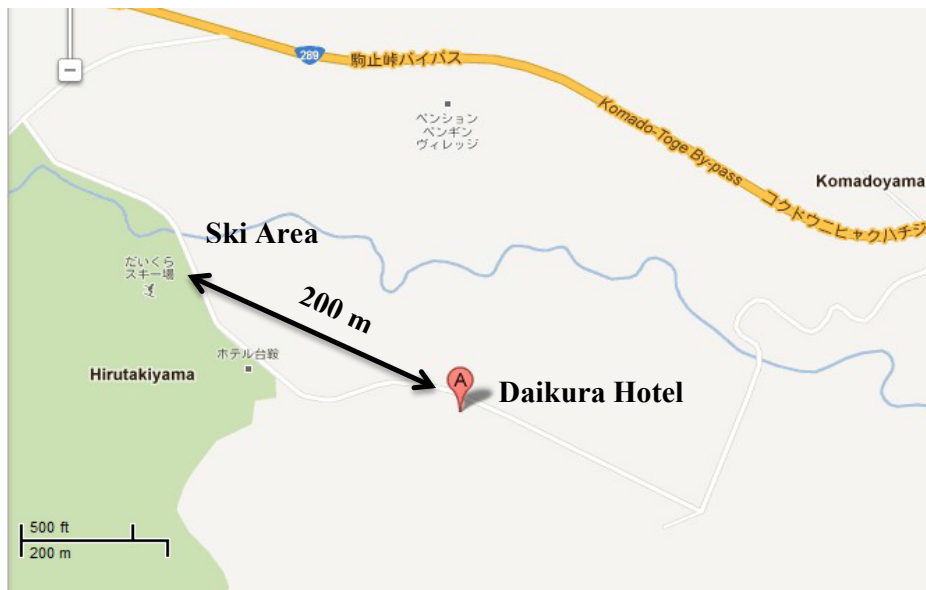
What to bring?

- Personal toiletries
- Change of clothes
- Ski wear if any
- **Projector, projector screen:** Duc, Thanh, Huong
- **Computers, pointer, electrical sockets:** Phuc, Dung, Ngoc Anh
- **For Duc: Please make sure that the projector will work properly.**

Work assignments for operation of Presentation session

- Photographer: Duc, Dung
- Preparing for presentation: Vuong, Hung, Duy
- Handouts delivering: Sally, Phuc
- Tidying up after presentation: Bach, Ngoc Anh, Thanh

Skiing Courses and Map



Academic Presentation

Starting from 8h00, Thursday 6th 2014 at Hotel's Conference room

Time	Presenter	Title of presentation
8h15	Pham Van Thanh	Approximation sum of random variables and its application in wireless communications
8h30	Le Thai Hung	Client-based Advertisement Insertion for Adaptive Video Streaming
8h45	Vo Tuan Dung	Background subtraction and its application
9h00	Tran Ngoc Anh	High efficiency MIMO VLC with spatial multiplexing gain
9h30	Sari Yamaguchi	Design and Performance Evaluation of VLC Indoor Positioning System using Optical Orthogonal Codes
9h45	Nguyen Van Duc	An evaluation of bitrate adaptation methods for HTTP Live Streaming
10h00	Vu Trong Bach	Selective Relay Decode-and-Forward QAM/FSO Systems Over Atmospheric Turbulence Channels
10h15	Vuong Viet Mai	Cross-Layer Design and Analysis for FSO Links using Automatic Repeat Request and Adaptive Modulation/Coding Schemes
10h30	Bui Duy Huong	Bandwidth sharing for multiple streaming clients in home networks
10h45	Luong Anh Duy	Receive Diversity in Multihop Free-space Optical Communications
11h00	Abdoulaye Niang	Simulation and performance theoretical analysis of OOK optical communication system using APD receiver
11h15	Trinh Viet Phuc	Optical Amplify-and-Forward Multihop WDM/FSO for All-Optical Access Networks
12h00	End	

Abstract of presentation

1. Pham Van Thanh: *Approximation sum of random variables and its application in wireless communications*

Relay and diversity techniques have been attracted much attention in wireless communications. In such kind of systems, received signal at the destination normally is the summation of transmitted signals on each sub-channel. For each kind of wireless networks, the sub-channel is characterized by a specific random distribution. Therefore, study on the sum of random variables is necessary to investigate the performance of overall system. In my presentation, we will introduce some approximation methods for sum of random variables and its applications in wireless communications.

2. Le Thai Hung: *Client-based Advertisement Insertion for Adaptive Video Streaming*

Advertisement is a crucial factor in business models of Internet video streaming. So far, most methods for advertisement insertion are implemented at a provider or a proxy inside the networks. In this paper, we present an approach for client-based advertisement insertion in HTTP streaming, which has become a new trend in multimedia delivery nowadays. The advantages of our approach include 1) client's unawareness of advertisement media, 2) flexibility in inserting and personalizing advertisements, and 3) smooth transition between content and advertisement.

3. Vo Tuan Dung: *Background subtraction and its application*

Background subtraction aims to isolate objects from the rest of the image which isn't of interest; the reason for doing this should be obvious. For example, in video security, the camera mostly has no interest in boring background, which doesn't change by time. What is of interest is when people or vehicles enter the scene and we want to segment those events from background. In addition, background subtraction also serves for separating parts of objects such as face, hands... from one person. In this work, I will study several background subtraction models and implement these methods in the context of hand segmentation.

4. Tran Ngoc Anh: *High efficiency MIMO VLC with spatial multiplexing gain*

It is expected that LED lighting will be widely employed in lighting technology due to environmental and commercial advantages. Additionally, LEDs can also be used as a transmitter for data transmission this technology is referred to as Visible light communications (VLC). Especially, in typical indoor scenarios, e.g. office or home, VLC is expected as a strong contender to WiFi for home networking and a reliable successor in case of the use of WiFi is concerned. However, VLC have to overcome several challenges

including limited bandwidth and applicable modulation schemes. Utilizing multiple input multiple output (MIMO) system is one promising approach to achieve high data rate connection. Two well-known MIMO techniques Spatial multiplexing (SMP) and Spatial modulation (SM) that offer the multiplexing gain becomes attractive research topic in several recent years. In my research, I will apply SM and SMP into an indoor VLC system in diffused environment. The system performance will be compared to realizing the benefit of two schemes over classical MIMO techniques Repetition code (RC).

5. Sari Yamaguchi: *Design and Performance Evaluation of VLC Indoor Positioning System using Optical Orthogonal Codes*

Indoor positioning system has become popular in recent years. Visible light communication identification is a system that gets positioning information from LED lights. It is expected to use indoor environment, where GPS is unavailable. Our proposal is to design the VLC based indoor positioning system by using Optical Orthogonal Codes (OOC). The simulation room is considered the big area like major stations and airports. Finally, we evaluate that performance.

6. Nguyen Van Duc: *An evaluation of bitrate adaptation methods for HTTP Live Streaming*

In recent years, HTTP streaming has been quick adopted by major vendors and providers. Along with that, many adaptation methods have been proposed. We will provide an evaluation of such methods in context of live video streaming. The evaluation is carried out not only in terms of bitrate and buffer behaviors but also in terms of the perceptual impact to end users.

7. Vu Trong Bach: *Selective Relay Decode-and-Forward QAM/FSO Systems Over Atmospheric Turbulence Channels*

In this paper, we analytically investigate the performance of selective relay FSO systems employing DF scheme and QAM taking into account of the fading effect caused by the atmospheric turbulence. The lognormal distribution is used to model the fading channel. The closed-form of system symbol-error rate (SER) is analytically derived, and the numerical results quantitatively highlight the impact of the number of relays, turbulence strengths and QAM signaling on the average SER improvement of the selective relay FSO systems. We also verify the theoretical analysis by Monte-Carlo simulation and a good agreement between the analytical and simulation results is confirmed.

8. Vuong Viet Mai: *Cross-Layer Design and Analysis for FSO Links using Automatic Repeat Request and Adaptive Modulation/Coding Schemes*

This presentation introduces a framework for cross-layer management of data transmissions in free-space optical (FSO) systems over atmospheric turbulence channels, in which link layer automatic repeat request (ARQ) and physical layer adaptive modulation and coding (AMC) are integrated to improve the system's spectral efficiency. The system performance is analytically studied in terms of average frame-error rate and average spectral efficiency, for which we derive closed-form expressions. In numerical results, we show how the proposed scheme significantly outperforms a conventional one, and discuss cross-layer designs for parameters' selection in both physical layer and link layer to optimise the system performance over different atmospheric turbulence conditions.

9. Buy Duy Huong: *Bandwidth sharing for multiple streaming clients in home networks*

A few years ago, we use a computer or IPTV for watching video at home. Nowadays, any smart devices can also download and display video from the Internet. So, a house's Internet access link should support multiple devices and multiple connections simultaneously. The main problem is that these connections will compete with each other for bandwidth, making the players unstable. My research focus is to solve this problem. In this talk, I will present a shaping method that can significantly reduce the oscillation of bandwidth (restrict competition between the players) and thus improve the QoS for all clients.

10. Luong Anh Duy: *Receive Diversity in Multihop Free-space Optical Communications*

In this paper, we propose the use of spatial receive diversity in multihop terrestrial free-space optical communications as an effective solution to enhance the system reliability. The system performance in terms of outage probability is derived in closed-form for both amplify-and-forward and decode-and-forward relaying. The negative effect of channel correlation on the system performance is comprehensively examined. Based on that, we quantitatively discuss various issues regarding the practical design of the system.

11. Abdoulaye Niang: *Simulation and performance theoretical analysis of OOK optical communication system using APD receiver*

For this project, using OOK optical communication model to simulate analysis the performance of the optical signal when an APD receiver is used. It was seen that the performance of such systems is affected by BER rate, however using APD receiver could improve the performance and optimised it by an appropriate selection of APD average gain.

12. Trinh Viet Phuc: *Optical Amplify-and-Forward Multihop WDM/FSO for All-Optical Access Networks*

Multihop free space optical (FSO) system using optical amplify-and-forward (OAF) relaying technique combined with wavelength division multiplexing (WDM) is proposed for all-optical access networks. The proposed system can provide a low cost, flexible and high-bandwidth access network for multiple users. To investigate the system performance, we consider a special case of dual-hop WDM-FSO system taking into account the effects of all noises, interchannel crosstalks, as well as path loss and geometric spreading of optical beam over atmospheric turbulence channels. In addition, pulse position modulation (PPM) is employed for improving the overall performance. Our results show that OAF technique combined with PPM scheme can be a good solution for mitigating the effect of atmospheric turbulence. Moreover, the required amplifier gain corresponding to a specific value of BER, transmission distance, and turbulence strength is also quantitatively discussed