

Making a difference with my in depth study of machine learning at UEC

An appealing curriculum that balances theory with practice

I used to watch Japanese anime when I was a kid, and that got me interested in Japan. I was able to qualify for an undergraduate scholarship from Japan's Ministry of Education, Culture, Sports, Science and Technology, and after studying Japanese for one year at Osaka University. I enrolled in the University of Electro-Communications (UEC). This university specializes in information-related fields and it has an appealing curriculum that combines theory with plenty of practical work. UEC has also produced many prominent engineers, including the "father of the PlayStation". Ken Kutaragi: I was so excited when I attended a lecture by him. I've been studying security systems and encryption technology so far, and in my fourth year I will join Professor Hayaru Shono's lab to study machine learning. I want to combine my studies of machine learning and encryption technology, and use this knowledge to develop new technology that will make a positive difference in the world. In the future, I hope to apply this technology to create an efficient

agricultural system for predicting crops that are ideally suited to the soil in Cameroon; that's my dream

Message for students in the home country Connecting Japan and Cameroon so we can advance together

UEC does not have as many students as some other larger universities, and this is good because it means you can form deeper connections with the teachers and other students. There is a real sense of inclusion here, and I've made some close friends both on a public and personal level. If there is anything that's troubling me in my studies or daily life, I know I can get sound advice and caring support from the UEC international student advisors and teachers at the International Education Center. You can acquire the specialist knowledge you'll need to be an engineer by attending the high-level classes at VEC. I've also had the opportunity to do internships at major international companies, which has taught me what it takes to become an engineer in Japan. I've learnt and grown so much in these three years at UEC, and I know you will also gain a lot by choosing to study here

Tchicali Kamdem Franck Patrick 3rd year undergraduate student, Information Security Engineering Program, Department of Informatics, Faculty of Informatics and Engineering Contry: Republic of Common I'm a member of the International Cutural Exchange Society (IES), which dis a chance to from countries around the world as chance to instract and learn more about interneting and fully and cuture. It's a really interneting and fully acid group bits holds may around a significant participant of home of the significant of the participant operation of the significant of the participant operation of the significant of the from variation countries.



Devoted to the research of biometricidentification systems, under the enthusiastic guidance of the professor

VAMOUA

1st year doctoral student, Dept of Computer and Network Engineering, Graduate School of Informatics and Engineering

Country : Laos Last school or institution before furthering studies in Japan : University of Health Sciences (Laos)

The support system has been enhanced and the environment improved to allow focus on research

Learne to Japan as a Government-sponsored foreign student, progressing to the University of Electro Communications (UEC) after studying at National Institute of Technology, Toyota College, Lannow working under Associate Hoessor Hideki Yagi, researching the theory of biometric-Jounification systems based on fingerprint. It is possible That finggerprints can be associated with the incorrect prismo durge the access of registration, or they can be unreadable if unclear. Our aim is to minimize this 'error rate' and increase their level of Unitity. Prof. Yagi gave me careful, individual guidance. Naturally, her engages in research discussions

Truch ragi gave me cancion, numulua guarante. from a variety of countri Naturally, he engages in research classicusions with me, and also checks the papers I submit to conferences or journals. He even pays close attention to my life, and serves a role life a parent for me in Japan. I am grateful to both my

professor and the university, for the fact that I can focus on my research. I would like to hone my knowledge and techniques further, so that I can contribute to the creation of a better society back in Laos in the future.

You can widen your outlook and even grow as a human

Becaute UEC conducts internationally catting-edge research in the fields of information and engineering approximation of the second second second second provide a high-level learning engigatement fraction are can acquire topological second second second appets of file, and provides an opportunity to grow as a human international students are down to UEC from a variety of countries, so lives able to learn about the behavior and views on this group of a bout minimum and when the fact that although in each country i attribute the fact that although in each country i attribute the fact that although in each country i attribute the fact that although in each country i attribute the fact that although is international turkent.



2

Joys of learning under esteemed teachers in my dream country

Japan has so many excellent companies with outstanding precision machinery such as Canon, SONY and Hitachi, to name a few.So1 decided study in Japan, which is "birthplace" of these preeminent companies. I chose the University of Electro-Communications

(LEC) after hearing Professor Signit Minorabitrafrom the certaines chold of Informatics and Progneming discussing her facinating research at the LEC open campus event. Under the professor's againance, Iam currently working on developing an all-fiber-type dual-comb spectroscopy system. This new type of spectroscopy can measure broadband spectral information with high accuracy and short acquiditon time, and It can be used to measure the properties of all kinds of busbances, from gases to solids. The spectrometer is also quite compact, so it can be attached to planes and nockets and used for atmospheric measurement, it has great potential for application in remote imaging as well. I'm aiming to commercialize the spectrometer during the course of my studies at the University. Oncel graduate, I hope to work as an engineer at a Japanese corporation and do what I can to connect the vast Chinese market with the smaller Japanese one.

Message for students in the home country An excellent environment for research and everyday life

The main diavcated for me is the exceptional teaching staff at UEC, patie-taily in communications and rabbics and optical scheme. Anyor of the profession are allow vorking on mitimality and profession be in Another major advantage of studying Thee B that UEC as an another unitary advantage of studying Thee B that UEC as an another unitary advantage of studying Thee B that UEC as an another UEC hand commonly makes the cost of studying easier for students to handle time studying at the new UEC Fort advantage, which is the adjacent to the campus. So even If This working in the labe until late at mitigL can quickly remain to my room and next this is anally great benefit of studying on cammon.

Commercializing my UEC research findings and working as an engineer in Japan

Wang Yue
Ist year doctoral student, Dept of Fundamental Engineering Science,
Graduate School of Informatics and Engineering
Country: Progels Regulate of China
Last school or Intellinton before Unterleng studies in Japan - Hegang First middle school



About UEC The Cutting-edge of Science and Technology

From the President Takashi FUKUDA

UECs fundamental mission is to create and apply knowledge and technology that will contribute to the sustained development of humanity. UEC Vision 2018 – Ceretranial Challenges - indicates our future model which we pursue to complete by our 100th anniversary in 2018. This vision is rooted in the understanding that the sustained development of humanity depends on our ability to beak fere from the mutatial aviliation of the 20th century and achieve a society in which everyone can live fulfilling purposed lives, and innovation that prioritizes person-to-person, person-to-nature, person as objective and person-to-artifact communication is essential for the achievement of this society. We refer to the wide nange of integrated scientific and technological system's that will create this innovation as "comprehensive Communication" Sciences, becaris these systems will seek to understand a wide wairdy of phenomenon from the perspective of communication, in the broad sense of the term, and solve problems theforghen the comprehensive application of related individual academic disciplines and component technologies. We intend to use the "Comprehensive Communication Sciences" as a foundation for engaging in research, training and social services that will combate to the society of the 21st century.

Message to International Students

UEC specializes in science and technology related to the "Comprehensive Communication Sciences", particularly in the areas of information sciences, computer sciences, telecommunications, electronics, mechatronics, robotics, optical technologies, physics, chemistry, biology, etc., and offers 14 undergraduate programs, Ya mater's programs and 4 doctral programs.

UEC is open to ambitious international students as well as a multitude of research collaborations. We are more than happy to welcome you if you can join us.



The Mission of UEC

(URL) <u>http://www.ucc.acip/eng/sbour/</u>
Aiming for the creation and achievement of knowledge and skill to contribute to the
sustainable development of humankind

Education and research at the cutting-edge of science and technology for the benefit of all humankind

Cultivating talented researchers and technologists who will be successful internationally to take the initiative in various fields

Creative engagement and cooperation with society in the pioneering of a new era of science and technology

"Unique and Exciting Campus."

UEC aims to become a "Unique and Exciting Campus" as our ideal university by implementation of UEC Vision 2018. This means that we aspire to make UEC an exciting campus where unique students and researchers gather from around the world and are trained to be global leaders in the creation of **exciting** new knowledge.

Comprehensive Communication Sciences

The University of Electro-Communications (UEC) has been advocating "Comprehensive Communication Sciences" as a core philosophy to promote academic activity for education and research. (URL) http://www.uec.ac.ip/eng/about/com

needs to cooperate with other excellent

This implies that we should have the capability

researchers, i.e., communication and interaction

ication Sciences?

There are various kinds of exchanges of

information, energy and materials between

humans and societies, humans and the natural

environment, and societies and the natural

environment. The word "communication" is

generally used to represent the verbal or

nonverbal exchange of ideas among humans.

Here we expand the concept of "communication"

and redefine it to mean all exchanges of

between different research fields

What is Comprehe



Scheme of tripartite co nication among nans, societies and the natural enviro

Scientific and Engineering Research in the 21st Century

Up to and including the 20th century, individual disciplines matured somewhat independently of other disciplines. Even isolated researchers might have been able to contribute to the progress of science and engineering without any help from researchers in other fields. In the 21st century. however, it is difficult to make new discoveries and/or develop innovative technology without



Fig. 2. Scatter plot of 14 education programs based on tripartite communication.

information, energy and materials, as shown in Figure 1. Today, the exchanges are often mediated by manufactured artifacts. The use of the word "communication" in the phrase "Comprehensive Communication Sciences" refers to this redefined communication. The basic philosophy of "Comprehensive

Communication Sciences" is that there are two purposes of "communication": (1) communication as a communication-oriented scientific and engineering research target and (2) communication as a tool for promoting research collaboration. It is important that individuals participating in a research team have projecting expertise, a wide range of interests and strong communication skills to make the team stronger.

These faculties provide people with solid bases on which they can interact synergistically to achieve individual targets that are coherently directed towards the common objective of a team. At present, UEC prepares 14 education programs for students and graduate students to become innovative neonle with those faculties Figure 2 is a scatter plot of the 14 education programs based on tripartite communication. Thereby the students will be able to play active roles in the world after graduation.

Thus, on the basis of the philosophy of Comprehensive Communication Sciences LIFC is promoting research and education to contribute to making a more pleasant and sustainable societies



Undergraduate: School of Informatics and Engineering

School of Informatics and Engineering is intended to develop human resources capable of advancing "Comprehensive Communication Sciences" that supports the sustainable development of a prosperous and safe society. For this reason, the School aims to develop students' wide perspective, practical and specialized knowledge, and innovative creativity, through study and research in informatics and science and engineering, as well as in new innovative academic areas that integrate these two specialties. Therefore, from the second year, the program is divided into broad groupings of clusters that are specialized but at the same time are not narrowly focused. From the fall semester of the second year, students will have 14 education programs within the clusters from which to choose their preferred specialty. Education programs offer curriculums that are consistent with Masters level education

School of Informatics and Engineering – Media Science and Engineering – Management Science and Social Informatics – Mathematical Information Science – Computer Science Information Security Eng

3 clusters and 14 education programs

sformation Security Engineering Information and Communication En-3ectronics and Information Engines Weasamement and Control Systems Advanced Robotics Mechanical Systems Electronic Engineering Optical Science and Engineering Applied Physics Chemistry and Biotechnology

m for Advanced Engineeri



Graduate: Graduate School of Informatics and Engineering

Building on the mastery of fundamental and cross-cutting scholarship acquired at the School of Informatics and Engineering the Graduate School of Informatics and Engineering conducts studies and research in academic areas related to advanced science and engineering that target nature and manmade artifacts, academic areas related to information processing and communications and academic areas that integrate these two disciplines, and academic areas related to human knowledge behavior, and complex socioeconomic systems

This graduate school conducts original education and research with the goal of creating and systematizing new practical science and technologies related to "Comprehensive Communication Sciences" for realizing an advanced communications society where people live together in harmony, and thereby, providing returns to society.



Four Departments of the Graduate

School of Informatics and Engineering



6



100 years of Revolutionary Change Spanning Centuries ofTurbulence -and further toward the future ahead



History

The origins of UEC go back to 1918, when the Technical Institute for Wireless-Communications was founded by Wireless Association to train wireless communications engineers.

In 1949 under the new system of education established by the National School Establishment Act, the institute was transformed into the University of Electro-Communications. UEC expanded its areas of specialization in the midst of Japan's rapid economic growth and the development of an advanced information society that occurred at the same time as that growth.

In 2004, the University of Electro-Communications was incorporated under the National University Corporation Law.



People in modern society face many difficult issues not only on a global level such as the have acquired practical capabilities in many environment, energy, food sources, intercultural sectors, including information, communications, conflict, North-South issues but also issues electronics, mechatronics, and basic sciences on a day to day level where people seek safe. (mathematics, physics, chemistry, etc.) as well secured and fulfilled lives To solve these various as in the sphere of integrated arts and sciences that are broadly related to communications. In current issues, it is essential to get away from the 20th century's materialistic culture and addition, we have received high praise for many to seek and create a new culture centered of our unique research efforts, such as the on communications between individuals. integration of science and technology centered individuals and nature, individuals and society, on optics. Based on these achievements and and between individuals and man-made traditions, we will strive to further develop UEC refers to this new form of society as

"Advanced Communications Society", and the

university is contributing to the society and

the world of the 21st century by creating and

developing *Comprehensive Communication

Sciences" which would be an essential field of

science and technology for supporting such

objects

society.

education and research in "Comprehensive Communication Sciences" in terms of both breadth and depth. LIEC has drafted an outline of the form it will strive to attain by 2018 the 100th anniversary of its establishment, and it has created specific action plans to achieve this vision These plans will be carried out steadily in upcoming years.

(1) We will aspire to become a global center of excellence for education and research in "Comprehensive Communication Sciences", (Comprehensive education and research strategy)

- (2) We will cultivate academic excellence with a global perspective, high ethical standards and practical application skills on the basis of international-standard expertise. (Educational policy)
- (3) We will provide students and researchers from around the world with a research environment which encourages open-minded research to come up with unique ideas. (Open education and research environment)
- (4) We will improve the quality of education and research through diverse forms of collaborations with universities and industries in and outside Japan as well as local communities. (Relationship with society)
- (5) We will enhance openness and transparency in management and build up mutual trust and raise morale among students and employees, and aim at a highly reliable academic institution in society. (Organization, management, and operations

(1)**Institute for Laser Science**

The creation of high-quality laser light is essential for the progress of this cutting-edge applied scientific research. The goal of the research conducted by the Institute is to produce high-quality light within a wide frequency range. The institute serves as a base for the



dissemination of information in these fields. In the field of education, the nstitute is developina ducation programs and actively providing optics education both , within and outside the

2 Brain Science Inspired Life Support Research Center **FUREN** H To realize a society in which people can be healthy in both mind and body and lead lives full of happiness, we develop a comprehensive welfare and medical care support system that incorporates knowledge from fields of science and engineering that have experienced significant development in recent years, such as neuroscience, computer science, and robotics. The mission of the center is to engage in combined medical and engineering research and to provide education that trains researchers to



pursue this research. 1111111)



structures functions and catalysis of fuel cell catalysts are still not well understood from a scientific perspective. The essential mission of the Center is using the new BL36XU beamlinewhich was constructed

in SPring-8, is the only one of its kind in the world, and boasts the highest performance in the world-for in situ XAFS, time-resolved XAFS, and spatially resolved XAFS, and to thereby develop next generation fuel-cell technology that will revitalize Japanese industry.

Broad Range of Fields in Science and Technology

4 Cluster II (Emerging Multiinterdisciplinary Engineering)

URL http://apple.ee.uec.ac.ip/isyslab/indea_e.html The organization serves as the foundation for transportation devices, electric appliances, space communication devices, information



5 Cluster I (Informatics and **Computer Engineering**)



URL http:/ The center is engaged in a

6 Center for Photonic Innovations



Facilities and a Campus that Support Research East West Innovation Research Center for Fuel Cells Photonic Innovation Sugadaira Space Radio Ob Institute for Lacor Science - Brain Science Inspired Life Support Research Cente Student [University Library **Communication Park** Center for Space and Radio Engi TIMAN نه ال Research Center Info-Powered Energ System Research Ce **F**LF To Hachio UEC Alliance Center Main Gate South Gate To Shinjuku Advanced Wirele Communication Research Center To Chofu Station Artificial Intelligence 100th Anniversary Campus "UEC Port" As we head toward the 100th founding anniversary in 2018, we are moving Dorm TOMODACHI UEC Port Lodge forward on developing the "UEC Port" based on the concept of "Unique and Exciting Campus Port." "UEC Port" is fully equipped with world class, cutting-edge

vation Research Center for Fuel Cells

SPring-8



joint research facilities (UEC Alliance

Center) and international dormitories

where international and Japanese

students can interact (Dorm TOMODACHI

and Dorm KIZUNA).



International Exchange and University Events

the good hiring rate of our fresh graduates of ours

every year. More than half of the fresh graduates of

UEC international students are hired in Japan, as they

Even though we are a small scale university an

excellent education and research environment is

provided to our students. Here is an indication that

UEC has a good environment for study; it is very

Events for International Students

There are events specifically for international students. The following are events held in the 2016 academic year Please note that events are subject to change every year

- Jun. Etegami Workshop UEC Home Visit Program
- Dec. Kimono/Tea Class Tul. (MIFO) Yukata Class International Exchange Day at Tokyo

UEC is the national university with the department

of engineering and informatics, and many of our

graduates have been and are being engaged in

technology fields in various companies. Major

Japanese corporations appreciate UEC graduates

owing to their enthusiastic and studious attitudes to

their work with skills in their fields, which results in

research and/or development of the science and

Aug. Closing Ceremony

12





the questionnaire to international freshmen, many

URL htt



University events

Apr. Entrance ceremony Orientation for enrollment Aug. Spring semester final exam Summer vacation Oct. Sports festival Nov. Campus festival (Chofu festival Dec. Anniversary of university found Winter vacation Feb. Fall semester final examinations Spring vacation Mar. Graduation ceremon

fascinating that we have new international students of them heard about UEC, for the first time, from every year, whose siblings, spouses or relatives are their friends who were UEC graduates or were graduates from UEC or currently studying at UEC. All studying in our campus then. We believe that the of them say, "my sibling/spouse/relative often told good reputation and private advertisement by me he/she has spent a quality study or research UEC international students has won the new UEC life at UEC, with supportive supervisors and a good international students so far. We hope that this leaflet environment for study." In addition, according to and our publicity at the Study-in-Japan fair will help

new students in the near future.

Increase in the Number of Female Students, and the Active Roles They Play

The number of female students studying at UEC is on the rise every year, and the proportion of female students furthering their studies at the graduate school is also increasing. Female graduates are harnessing the skills they have acquired at UEC to play active roles in various sectors of society.



I will become a researcher who has a good command of English to collaborate worldwide

I wanted become proficient in English just as I can speak Japanese, so studied abroad at Blekinge Institute of Technology, Sweden, during my 3rd year. What impressed me the most were the discussion lessons English. A group of five, comprising three Swedish students, one Danish student and me, talked about environmental problems together. I did not yet have much English ability, but I desperately tried to speak, and this helped to discipline my will. In the future, I would like to become a researcher who can fully take advantage of English ability to facilitate collaboration with other universities worldwide.

Current Student Yasuha Yoshihara

Informatics and Engineering

Misato Kasuya 4th year undergraduate student, Department of Engineering Science, Faculty of 3rd year of doctoral course, Advanced Robotics Program, Department of Mechanical Engineering and Intelligent Systems

therapists.

Current Graduate student



be performed without veteran therapists

My field of research is functional restoration. Many of the rehabilitation

devices currently available have been developed for use at hospitals or

for use with the support of therapists. In contrast to these devices, the

system I am developing will allow people to rehabilitate on their own, anytime and anywhere. It works by attaching seal-type electrodes to

the body, which provide electrical stimulation that contracts the muscle

and induces movement. This in turn leads to the restoration of bodily

functions. If this system is realized in the future, people will be able to

perform effective rehabilitation at their homes in the absence of veteran

Playing an active role as an audio professional at NHK

During high school, I developed an interest in "handling sound," and hence pursued my studies at the University of Electro-Communications where I could study sound engineering and speech signal processing. For my graduation thesis, I took up the challenge of creating a formula and programming it to automatically divide overlapping chords into single notes. I currently belong in the audio division of NHK's Program Production Technology Section, where I work with a wide genre of sounds, with a focus on classical music programs. In the future, I hope to be involved in the recordings of performances by renowned orchestras from overseas.

Alumni Michiko Hagiwara

Working in the Program Production Technology Section, Production Operation Center, Broadcast Engineering Department of Japan Broadcasting Corporation (NHK)

"The school year of interviewees is accurate as at the time of the issue. 13

The Campus and Chofu City

This is what Chofu City is like

Chofu Station on the kelo Line is the closest station to UEC It takes about 15 minutes to reach the campus by the limited expréss train from Shinjuku Station. Located close to the heart of Tokys, the compact area aroung? the station comprises shopping streets and residential districts. Fudareing Strine, built appointately 1340 years ago, stands next to UEC, while Tamagawa River, JindaijTempier, and Indaj Botanical Gardens can also be found a thite divinter away.

A campus surrounded by green trees

The campus, which has created about 60 years of history since UEC's relocation to this site, is a welcoming place with high treetops and lush greenery. It provides a learning space that integrates cutting-edge research and educational facilities with nature.



Convenient Location

UEC is located in the Tama area (Chofu City), a part of Tokyo where many universities are found, and the campus environment is full of trees and greenery. Even among the many universities in the area UEC is blessed with a prime location. It is only a five-minute walk from the nearest train station (Chofu Sation) and just a 15-minute train inde from Shingiku on the Kelo Line.



Providing Support for the Everyday Lives of International Students

Center for International Programs and Exchange (CIPE)

The goal of the center is to promote the internationalization of UEC through activities such as planning various strategies for internationalizing research and education, enhancing the international education provided to international and Japanese students, and making local and international contributions.





Greetings from UELI. We are the staff of Center for International Programs and Exchange (CIPE) and International Student Section of Student Service Office supporting ALL the international students at UEC. We currently have 5port 280 international students in the orderigraduate and graduate schools, and offer programs (e.g. exchange program and government-supported program). We are supporting the with advice related to visa & resident status, study path, living, housing, health, human relations, schooling, erc.a well as organizing the activities/events of some Japanee culture.

since we are the one and only "concierge" for them from the visa matters to whereto-purchase-that questions. And we are

We support you!

Japanese culture. Fe Our international students never need to wonder where to visit to call for help in campus, at U

very proud of our service for ensuring their successful campus life. Feel free to send us inquiries flyou have any questions and/or concerns about campus life at UEC and life in Tokyo.



15