Affiliation Title Name 所属 職　氏名	Academic Society 学会名	Country 開催国	Period 会期	Abstract 概要
Faculty of Software and Information Science Professor GOUTAM Chakraborty ソフトウェア情報学部 教授　ゴウタム・チャクラボルティ	AIT2017 高度情報技術に関する国際会議	Taiwan 台湾	2017.4.22	**Title** Analysis of Time-Series Data – A Case Study with Electroencephalogram Signal for BCI Speller **Abstract** One way of modeling a dynamic system is by analyzing the set of time-series data collected by sensors attached to the system. Modeling of the set of time-series is an important data-mining task for prediction in future, or detection of deviation from normal behavior (anomaly). Depending on the target application, and based on the domain knowledge, we need to design an efficient algorithm for analysis. In this talk, I will explain how analysis of time-series-data collected from sensors attached to human body as system can reveal the state of the system. Analysis of the electrical signals like EEG and ECG could reveal the metal and physical state. As for the tools used for analysis, I will explain: distance measurement for time-series signals, clustering techniques, multi-objective optimization using genetic algorithm, artificial neural network for classification. We will consider two bio-signals, ECG and EEG. The types of signals are different, one periodic and the other not. The applications are different too, EEG for BCI application, ECG to monitor heart-health.
Center for the Advancement of Higher Education Associate Professor ITO Eishiro 高等教育推進センター 准教授　伊東　栄志郎	The James Joyce Society 北米ジェイムス・ジョイス学会	Canada カナダ	2017.6.21～25	**Title** Joycean Disapora in the Chinese/Japanese Written Character **Abstract** James Joyce was among the Irish diaspora. So far, most Joyce studies have focused on how European literature, languages, histories and cultures influenced him. This paper will explore how Chinese/Japanese written characters were used in Joyce's works, especially in Finnegans Wake. Alphabets represents sounds while Chinese characters can be considered as thought-pictures describing concepts. Between September and December 1919, when "Sirens" and "Cyclops" were serialised in The Little Review, "The Chinese Written Character as a Medium for Poetry" appeared in four parts on the same magazine. It was written by the American Orientalist Ernest Fenollosa and edited by Ezra Pound. Joyce must have read it: "A true noun, an isolated thing, does not exist in nature" (10) is alluded to: "there is no true noun in active nature" (FW 523.10-11). Fenollosa explained that Chinese notation "is based upon a vivid shorthand picture of the operations of nature" (8). He continued that "the Chinese characters and the Chinese sentence chiefly as vivid shorthand pictures of actions and processes in nature" (21). Finnegans Wake contains some elements from Chinese and Japanese languages presumably because Joyce was interested in them as media of writing far different from European languages. This topic has been researched by Petr Skrabanek who wrote "St. Patrick's Nightmare Confession ([FW] 483.15-485.07)," and Kumiko Yamada who submitted a dissertation "James Joyce and the East: Beyond Orientalism in Finnegans Wake" to University College Dublin in 2013. I discussed how the insertion of Chinese/Japanese linguistic elements signified the whole alphabetical text.
Research and Regional Cooperation Division Professor Emeritus SAWAMOTO Jun 研究・地域連携本部 特任研究員　澤本　潤	21th International Conference on Knowledge Based and Intelligent Information and Engineering Systems 第21回　知識ベースおよび知的情報システムに関する国際会議	France フランス	2017.9.6～8	**Title** Development of a Sensor System for Monitoring the Behavior of the Elderly Residents **Abstract** In this research, we propose a sensor system for monitoring a house and residents. Residents' various behavioral patterns different from the signal which shows a vibration characteristic of a house are measured by the prototyped MEMS acceleration sensors installed in the house. And the degree of danger of the behavior of the resident is recognized from the vibration data and it is possible to detect abnormality and issue necessary warnings. A preliminary experiment was performed in standard housing (wooden and steel frame construction) using prototyped MEMS acceleration sensors and the highly precise servo type speedometer as a reference measuring instrument and some of the experimental results are discussed in this report.

Affiliation Title Name 所属 職　氏名	Academic Society 学会名	Country 開催国	Period 会期	Abstract 概要
Faculty of Policy Studies Associate Professor KOIDA Nobuo 総合政策学部 准教授　小井田　伸雄	SAET 第17回経済理論学会	Portuguese Republic ポルトガル	2017.6.25～30	**Title** Incomplete preferences and a unique subjective state space **Abstract** The objective of this study is to relate two renowned models of uncertainty, namely, expected multi-utility (Dubra et al. 2004) and ordinal expected utility in a unique subjective state space model (Dekel et al. 2001). To this end, we propose axiomatizations that derive joint representations of these two models, wherein the set of utility functions in the former is equivalent to the subjective state space in the latter. This result indicates that these two models describe the identical underlying principle of addressing uncertainty. The key axiom is dominance consistency, which requires that the addition of an alternative to a menu strictly improve the menu evaluation if and only if the alternative is undominated by the menu. The main result can be extended to a specific class of ordinal expected utility, such as the additive representation. The relationship between the preference over alternatives and the commitment ranking is also discussed.
Faculty of Software and Information Science Professor GOUTAM Chakraborty ソフトウェア情報学部 教授　ゴウタム・チャクラボルティ	IC2IT2017 高度情報技術に関する国際会議	Kingdom of Thailand タイ	2017.7.6～7	**Title** Optimum Route Recommendation System to Escape Disaster Environment **Abstract** In disaster environment such as Tsunami, people need to evacuate to safety shelter immediately. Using vehicle is the fastest way to evacuate. In case of emergency, instead of a specific destination, one needs to find route to a safety shelter, any one which could be accessed in shortest time. Existing navigation systems too can search a service instead of a specific destination. It calculates routes to nearby service points, and present a list of results to the user. The user has to take decision to select one from the list. In general people in the same area will get the same result from the system, and choose the shortest route, i.e., the nearest service point. In densely populated area, traffic congestion will appear in shortest route in a short time. Moreover destination accessible by the shortest route will quickly run out of service. It is better to choose different routes or different destinations from the beginning, by which traffic congestion could be avoided, and users will be distributed over several service points. In this paper, we proposed routing algorithm and navigation system to recommend optimum routes and destinations to users in a disaster environment. This navigation system can calculate and recommend routes considering multiple destinations and limited available resources at destinations, simultaneously.
Research and Regional Cooperation Division Professor Emeritus SHIBATA Yoshitaka 研究・地域連携本部 特任教授　柴田　義孝	CISIS2017 第11回複雑系および知能系ソフトウェア集約システムに関する世界会議	Italian Republic イタリア	2017.7.10～12	**Title** Evaluation of Never Die Network System for Disaster Prevention based on Cognitive Wireless Technologys **Abstract** By large tsunami damage due to the Great East Japan Earthquake, many existing network system stopped functioning in various factors. Even under such circumstances, some of the information communication method that including satellite communications, it was able to recover the Network Connectivity, actually quickly and effectively. Although there are some valid information communicating method in disaster, however the information communication method has a strong and weak points, when using each a single unit, it is not possible to follow the disaster area of the situations to be constantly changing. In addition, the emergency information communication system there may not be available in the battery out and do not know how to use in case of emergency. Therefore, it is important to design a systems available without a disaster by providing enough Network Capability. We developed a Never Die Network (NDN) system that is a new network system to achieve both the Network Capability in the normal and Network Connectivity in disaster based on the experience of Great East Japan Earthquake. In this paper, we propose a method for the system to autonomously derive the optimum packet flow by measuring the communication state such as throughput and packet loss in a system such as to considering multiple different access networks. We prepared a test bed that implements a prototype system, and evaluated based on a disaster scenario.

Affiliation Title Name 所属 職　氏名	Academic Society 学会名	Country 開催国	Period 会期	Abstract 概要
Center for the Advancement of Higher Education Associate Professor ITO Eishiro 高等教育推進センター 准教授　伊東　栄志郎	IASIL 国際アイルランド文学協会年次研究大会	Republic of Singapore シンガポール	2017.7.24～28	**Title** The Japanese Effect on Yeats, Joyce and Heaney **Abstract** This research focuses on how the Japanese poetry has influenced Irish literature, especially W. B. Yeats, James Joyce and Seamus Heaney.　Historically, An Irish writer [Patrick] Lafcadio Hearn (1850–1904) wrote numerous essays and books about Japan, which greatly helped introduce Japan to the West.　The first successful Japanese poet Yone Noguchi contributed to present the traditional Japanese poetic form, haiku and tanka, to the West through his lectures, books and his English poems with Japanese tastes. Particularly, the Imagist Movement was affected by the short Japanese poetry. Joyce's "I Hear an Army" is considered as an Imagist poem.　On Sandymount Strand, Dublin, Stephen Dedalus made a short poem: "He comes, pale vampire, through storm his eyes, his bat sails bloodying the sea, mouth to her mouth's kiss" (U 3.397–8). On 15 November 2000 in Dublin, Seamus Heaney gave a lecture "Petals on a Bough" as an introduction to a reading of 'Japanese Effect' poems, comparing the Japanese poetry with works of William Wordsworth, Matthew Arnold, Ezra Pound and even a ninth–century Irish poem.　In fact Heaney made some haiku–like brief poems.　Irene De Angelis wrote The Japanese Effect in Contemporary Irish Poetry (2012) but the Japanese impact in Irish literature is not limited in poetry. It is widely known that Yeats was inspired by the Japanese Noh play to write The Four Plays for Dancers and Joyce also owned a copy of 'Noh' or Accomplishment: A Study of the Classical State of Japan written by Ernest Fenollosa and Ezra Pound.
Research and Regional Cooperation Division Professor Emeritus SHIBATA Yoshitaka 研究・地域連携本部 特任教授　柴田　義孝	NBis2017 第20回ネットワークベースの情報システムに関する国際会議	Canada カナダ	2017.8.24～26	**Title** Mobility Information Infrastructure in Challenged Network Environment Based on IoT Technology **Abstract** As progress of declining birth birthrate and population concentration to big cities, most of the local areas are suffering from depopulation and shrink of economy. The economic activity is degreasing and social infrastructure is deriving poor social infrastructure such as bad road conditions and challenged information communication infrastructure. For those reasons, we propose a new mobility information infrastructure using sensor technology. Road side wireless nodes and mobile nodes with various sensors and different wireless communication devices organize a large scale information infrastructure without conventional wired network. Eventually, very economical and low priced mobility network environment can be realized by V2X communication protocols. In this paper, its system configuration and architecture are precisely explained. The expected applications and services for residents are also discussed. A preliminary performance of the communication network is evaluated and discussed.
Faculty of Software and Information Science Professor GOUTAM Chakraborty ソフトウェア情報学部 教授　ゴウタム・チャクラボルティ	The ITISE 2017 時系列に関する会議	Kingdom of Spain スペイン	2017.9.18～20	**Title** Minimizing the Number of Probes and Maximizing Classification Performance for P300 BCI speller **Abstract** To decipher human intentions by analyzing her brain wave is the basis for Brain Machine Interface (BMI) applications. Recently, with advancement of low noise probes, and fast signal processing software and hardware, brain signals generated by excitations of neurons, could be correctly classified for useful purpose. Conventional BCI speller uses 8 probes at pre–defined locations on the skull. In P300 BCI speller, an event related potential (ERP), called ERP–P300, is to be detected. Though it is strong in the parietal region of the brain, exact location of the strongest signal varies from person to person. The idea is that, if we optimize probe locations for an individual, we could reduce the number of probes required. Searching for optimum location of probes is done in two steps. First, we cluster the probe signals and select one representative from each cluster. Next, we find the optimum combination of those representative probes. Optimization criterion is two fold: minimizing the number of probes and maximizing classification accuracy. We use Pareto Genetic Algorithm for this Multi–Objective Optimization. We achieved over 75% classification accuracy even with as low as 2 probes, and from single P300 signal.

Affiliation Title Name 所属 職　氏名	Academic Society 学会名	Country 開催国	Period 会期	Abstract 概要
Faculty of Software and Information Science Professor GOUTAM Chakraborty ソフトウェア情報学部 教授　ゴウタム・チャクラボルティ	The ITISE 2017 時系列に関する会議	Kingdom of Spain スペイン	2017.9.18～20	**Title** An Efficient Anomaly Detection in Quasi-Periodic Time-series Data – A Case Study with ECG **Abstract** Anomaly detection from a time-series is an important problem with applications to _nd or predict development of a fault in a system. Depending on the source of the data, it could be non-periodic, quasi-periodic and periodic. Modeling an a-periodic data to detect anomaly is difficult. A pure periodic data seldom happens in nature. Finding anomaly in quasi periodic time series signals, for example bio-signals like ECG, heart rate (pulse) data, are important. But, the analysis is computationally complex, because of the need of proper window size selection and comparison of every pair of sub-sequences of window-size duration. This makes real-time anomaly detection of bio-signals difficult. In this paper, we proposed an efficient algorithm for anomaly detection of quasiperiodic time-series data. We introduced a new concept ″mother signal″, which is the average of normal sub-sequences. Creation of the mother signal is the first step in the process. Finding deviations of sub-sequences of varied duration (due to quasi-periodicity) from mother signal, the second step. When this distance crosses a threshold, it is declared as a discord. The algorithm is light enough to work in real-time on computationally weak platforms like a mobile phone. Experiments were done with ECG signals to evaluate the performance. It is shown to be computationally more efficient compared to existing works, and could identify discords with higher rate.
Faculty of Software and Information Science Associate Professor HORIKAWA Mitsuyoshi ソフトウェア情報学部 准教授　堀川　三好	CIE45 コンピュータとインダストリアルエンジニアリング	Portuguese Republic ポルトガル	2017.10.11～13	**Title** INDOOR POSITIONING METHOD FOR INTERNET OF MOVING THINGS **Abstract** This paper presents a proposal of a novel method for indoor positioning systems using Received Signal Strength Indication (RSSI) of Bluetooth Low Energy (BLE) beacons. In recent years, indoor location systems have been anticipated for wider use in various fields. They might be especially useful for IoT, logistics systems, and indoor navigation systems for which global positioning systems (GPS) are unsuitable. Heretofore, WLAN/BLE RSSI and various sensor values have been used. However, their positioning accuracy depends on environmental factors such as antenna gain and the sensor devices direction. Therefore, we propose an approach that is less dependent on the positioning environment using a relative method. The proposed method calculates the current position using a vector space model that incorporates the theoretical RSSI and observed RSSI. This method is anticipated for use in traffic line analysis and indoor pedestrian navigation systems, which must be addressed to support the Internet of Moving Thing. A prototype system was developed to evaluate the positioning accuracy. These results suggest guidelines for the introduction of indoor positioning systems.
Miyako Junior College Lecturer SAITO Kaori 宮古短期大学部 講師　齊藤　香織	ICDEA 国際差分方程式学会	Romania ルーマニア	2017.7.24～28	**Title** On the asymptotic stability of discrete crocodilians model **Abstract** In crocodiles, females are produced at one or both extremes of the range of viable incubation temperatures, and the intermediate temperatures produce males. Female crocodiles account for a significant proportion of the population which is the heavily biased sex ratio, as high as 10:1 in favour of females in crocodilians. This is difficult to explain in terms of traditional sex ratio theory. Therefore, Murray has shown the asymptotic stability of a positive equilibrium point in a nonlinear differential equation of crocodilians population model which is based on life history date from studies of crocodile and alligator populations in the wild. Furthermore, in order for crocodiles to preserve their species by themselves, he proved that temperature-dependent sex determination (TSD) is superior to genetic sex determination (GSD). Murray considers only the simplified two-region model of crocodilian population, but he does not prove clearly the stability analysis of the model taking into account three nesting region. This study was made to consider the asymptotically stable of positive equilibrium point of a nonlinear discrete model which a basic nesting population model described by three-region depended on the temperature of egg incubation. This basic model based on key life-history data and Murray's research. To study above, we have applying the classical linearization method and a luxury Liapunov function.

Affiliation Title Name 所属 職　氏名	Academic Society 学会名	Country 開催国	Period 会期	Abstract 概要
Faculty of Software and Information Science Associate Professor Bhed Bahadur Bista ソフトウェア情報学部 准教授　ベッド　バハドゥール　ビスタ	NBiS2017 ネットワーク情報システム国際会議	Canada カナダ	2017.8.24～26	**Title** Mechanism for Adopting Device-to-Device Communication in Cellular **Abstract** Recently Device-to-Device (D2D) communication has been proposed to efficiently utilize the resources of cellular networks by offloading some traffic of the Base Station (BS) to direct links between User Equipments, i.e. cellular network users. When two users communicate directly, i.e. using D2D link, instead of via the BS, the BS can use the resources to other users increasing the number of users in the network. While there are many works on optimization of resource sharing for D2D communication in cellular networks, a little works has been done on how to attract users to adopt and take part in D2D communication. Users have already paid for their data plan for communicating via the BS and may not want to communicate directly using D2D because it will benefit only the BS not for themselves. It is necessary to show or inform users that they may also benefit in terms of data transmission rate in some situations if they take part in D2D . If users know that they also benefit in D2D they may want to take part in D2D without asking any reward from the BS otherwise users will ask for some kind of reward such as coupon etc. to take part in D2D communication. In this paper, in order to encourage users to adopt D2D communication, we present users achievable data rate both in D2D link and cellular link when they ask the BS for contents. If the achievable data rate in D2D link is greater than the achievable data rate in cellular link, the user may take part in D2D communication without asking reward. If the achievable rate in D2D link is less than the achievable data rate in cellular link the user will ask for reward for taking part in D2D communication as it will be less advantageous for the user. We also present how much reward will be awarded for taking part in D2D communication. We have performed simulation under various conditions to find what percentage of users ask rewards for taking part in D2D communication. The simulation results have shown that all users do not ask rewards and may willfully take part in D2D communication because in some situation, it is more advantageous for uses to take part in D2D. Using our proposal, it is expected that many users will adopt D2D communication without reward from the BS, and at the same time the BS can use that resource to other users. As a result, the total number of users communicating within the coverage area of the BS will increase.
Faculty of Software and Information Science Professor BASABI Chakraborty ソフトウェア情報学部 教授　ﾊﾞｻﾋﾞ・チャクラボルティ	ITISE2017 時系列に関する会議	Kingdom of Spain スペイン	2017.9.18～20	**Title** A novel genetic algorithm based similarity measure for time series classification **Abstract** Practical pattern recognition or data mining problems often encounter time series data. Choice of a proper representation method and a similarity measure is essential for classification or clustering of time series data. Though there are various representation methods and similarity measures proposed so far, dynamic time warping (DTW) seems to be the most popular measure for comparison of two time series. Though classification accuracy with DTW measure is quite high, it imposes a heavy computational cost. In this work a novel algorithm DTW-GA, a combination of DTW and Genetic Algorithm (GA), is proposed in which an evolutionary approach using genetic algorithm is used to identify the most important portion of the time series by masking the time series with the optimum gene code which reduces the time of similarity computation by DTW. The simulation experiments with 43 publicly available bench mark data sets from different areas show that an increased computational speed by 7 times on average over normal DTW can be achieved without considerable degradation in recognition accuracy for time series classification problems. The proposed measure is particularly effective for longer time series.