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# Chaos Based Digital Communication Systems Operating Principles Analysis Methods And Performance Eva

**chaos based cryptography : a new approach to secure ...** - chaos based cryptography : a new approach to secure communications q.v. lawande theoretical physics division and b. r. ivan and s. d. dhodapkar reactor control division introduction cryptography is the science of protectiinformation during ng the privacy of communication under hostile conditions. **co-existence of chaos-based and conventional digital ...** - in this section we study the performances of the chaos-based and conventional digital communication systems under a combined en- vironment by computer simulations. the logistic map described in section 3.3 has been used to generate the chaotic sequences. for comparison, we also plot in each case the analytical bers obtained in section 3.3. **download digital communications using chaos and nonlinear ...** - noise filtering in bandlimited digital chaos-based ... in digital chaos-based communications systems, each bit of information is transmitted using a different fragment of a chaotic signal [1, 2]. thus, it differs fundamentally from the conventional digital communication systems, where each symbol is associated with a constant and **a new secure chaotic communication system** - spread-spectrum communication system based on chaotic masking [] “design of noncoherent receiver for analog spread-spectrum communication based on chaotic masking”. rulkov et al. reported a “digital communication using chaotic-pulse-position modulation” method []. callegari et al. designed successful experiment “chaos-based **digital communication using chaotic-pulse-position ...** - chaos-based communication schemes is their susceptibility to noise and distortions in communication channels. in this paper, we review a new approach to communication with chaotic signals, which demonstrates good performance in the presence of channel distortions. this communication scheme is based upon chaotic **digital communication using chaos and nonlinear dynamics** - the purpose of this contribution is to provide a brief overview of digital chaos communication on the example of an optical and a wireless commu-nication scheme. interested readers can nd a more extended and in-depth discussion in larson et al. (2006) [9]. 2. synchronization based chaos communication using optoelectronic devices **techniques in secure chaos communication** - techniques in secure chaos communication a phd thesis by yuu-seng lau (b. eng. elect. eng., b. comp. sci.) school of electrical and computer engineering science, engineering and technology portfolio rmit university melbourne, victoria, australia february 2006 **performance analysis of a chaos-based multi-user ...** - performance analysis of a chaos-based multi-user communication system implemented in dsp technology Ijljana simi ć and stevan berber department of electrical and computer engineering **do chaos-based communication systems really transmit ...** - do chaos-based communication systems really transmit chaotic signals? renato candidoa, diogo c. sorianob, magno t.m. silvaa,n, marcio eisencrafta a university of são paulo, brazil b universidade federal do abc, brazil article info article history: received 2 may 2014 received in revised form **study of anti-jamming capabilities of chaotic digital ...** - the anti-jamming performance of a chaos-based digital com-munication system. the specific system studied is the co-herent chaos-shift-keying system. from these results, useful design data for chaos-based digital communication systems can be obtained. references [1] u. parlitz, l.o. chua, l. kocarev, k.s. halle and a. shang, **design of secure digital communication systems using ...** - strated the pivotal role of chaos synchronization in secure communications [24–28]. chaotic signal masking [24], com-munication by signal reconstruction [25], communications-based active–passive decomposition [26], digital communication by chaotic switching [27], and digital communication based on in-phase and anti-phase synchronization **spread spectrum digital communication system using chaotic ...** - the 10th experimental chaos conference { ecc10 june 3 - 6, 2008, catania, italy spread spectrum digital communication system using chaotic pattern generator by fabio siqueira netto1 and marcio ... **chaos based shift keyingfor covert communication** - chaos based shift keyingfor covert communication nr.raajan, krishnamourthy karthikeyan, malligaraj.m, mathavan.k.s, praveen.s, sushidhar.j, ... of digital communication, systems have to be ... **optimum design for correlator-type receivers in chaos ...** - abstract — in chaos-based digital communication systems, a correlator is normally used in the coherent detection of the signal. in this paper, an optimum design for such correlator-type receivers is presented. a chaos-based digital communi-cation system with one chaos generator has been used to ex-emplify the performance of the design. **digital chaotic synchronized communication system** - tures, beneficial to secure communication systems, both analog and digital ones. two key features of deterministic chaos are the “noise-like” time series and the sensitive dependence on initial conditions [1, 2]. both of them grant to chaotic signals low prob-ability of detection in chaotic transmissions and low probability of **orthogonal chaotic vector shift keying in digital ...** - quadrature chaos shift keying (qcsk) reported in the literature, the noise rejection is improved by an increase in the ‘inter-symbolic separation’. furthermore, a new method of characterizing non-linear processing elements in complex communication schemes has been presented. based on this, a simple **chapter 7 chaos-based communication systems: current ...** - chaos-based communication systems: current trends and challenges jose m.v. grzybowski, marcio eisencraft, and elbert e.n. macau ´ 7.1 introduction muchresearchhasbeendevelopedto synchronizationandchaos-basedcommunication in the last two decades or so.

since the early 1990s, many papers have addressed the subject, and much progress has been made.

**suggested rules for designing secure communication systems ...** - suggested rules for designing secure communication systems utilizing chaotic lasers: a survey . qingchun zhao and hongxi yin . abstract—chaotic communications based on semiconductor lasers have aroused great research interest since 1990s. physical-layer encryption using chaotic lasers is an alternative to transmit message rapidly and ...

**synchronization methods for communication with chaos over ...** - synchronization methods for communication with chaos over band-limited channels nikolai f. rulkov\* and lev s. tsimring institute for nonlinear science, university of california, san diego, la jolla, ca 92093-0402, u.s.a. summary methods of chaos synchronization applied to communication with chaotic signals over band-limited channels are

**masking digital image using a novel technique based on a ...** - masking digital image using a novel technique based on a transmission chaotic system and spiht coding algorithm ... the chaos-based encryption has suggested a new and efficient way to deal with the intractable problem of ... in this work a communication system based on chaos encryption and spiht coding is realized. the global scheme of

**performance of a new chaos-based communication scheme: the ...** - the chaotic signal based uwb system [1] was proposed to satisfy the requirement of the ieee 802.15.4a standard for low power consumption, low complexity, and low data rate communication. many chaos-based communication schemes have been proposed and studied in recent years, including chaos masking [2, 3], chaotic switching or chaos-

**the dpsk signal noncoherent demodulation receiver based on ...** - international journal of bifurcation and chaos, vol. 26, no. 13 (2016) 1650216 (14 pages) c the author(s) doi: 10.1142/s0218127416502163 the dpsk signal noncoherent demodulation receiver based on the duffing oscillators array yongqing fu\*,‡, yanan li\*,§,linzhang†,¶ and xingyuan li\*, \*college of information and communication ...

**shujun li , gonzalo alvarez, zhong li and wolfgang a. halang** - (for a comparison of chaos and cryptography, see table 1 in [1]). basically, there are two major types of chaos-based cryptosystems: analog chaos-based secure communication systems and digital chaos-based ciphers, which are designed employing completely different principles. almost all analog chaos-based secure communication

**implementation of a differential chaos shift keying ...** - implementation of a differential chaos shift keying communication system in gnu radio ... many communication systems based on chaos have been ... the performance of chaos-based digital communication

**chaos encryption method based on large signal modulation ...** - the chaotic approach to digital signal encryption. key-words: - chaos encryption, chaos synchronization, additive nonlinear discrete-time systems 1 introduction chaos synchronization, pioneered by pecorra and carroll, spurred the search for the application of chaotic systems in the communication field [1, 2].

**chaotic pulse position modulation: a robust method of ...** - a number of chaos-based communication schemes have been suggested [3], but many of these systems are very sensitive to distortions, filtering, and noise. chaos-based com-munication systems and ics appear to form excellent partners, with each contributing important features. a chaotic system, as a part of an ics, can improve the communication ...

**an efficient chaos-based optimization algorithm approach ...** - an efficient chaos-based optimization algorithm approach for cryptography international journal of communication network security issn: 2231 – 1882, volume-1, issue-4, 2012 76 plaintext can be restored from the cipher text by the process decryption, opposite of encryption. the security offered by cryptographic-based systems

**springer series on signals and communication technology** - signals and communication technology functional structures in networks amln - a language for model driven ... for digital video broadcasting, 2nd ed. u. reimers isbn 3-540-43545-x digital interactive tv and metadata ... chaos-based digital communication systems operating principles, analysis methods,

**research paper performance analysis of chaotic ds-cdma ...** - figure 3. csk digital communication system chaos-based communication systems can be broadly classified into coherent and non-coherent based on the type of the demodulation technique used. coherent systems require an exact replica of the chaotic carrier to be reproduced at the receiver, there are two coherent receivers: • coherent receiver ...

**chaos-based image encryption using an improved quadratic ...** - 2 noha ramadan et al.: chaos-based image encryption using an improved quadratic chaotic map use several rounds of operation for block ciphers. the basic properties of chaotic systems are the deterministicity, the sensitivity to initial conditions and

**spread-spectrum communication using binary spatiotemporal ...** - any digital communication scheme, conventional or chaos-based: pseudo-random code generation. con-ventionally, code generation is accomplished by using linear shift-register generators that generate binary se-quences such as the gold code for spread-spectrum communication [22]. such sequences are pseudo-random, and the idea is to convolute the ...

**design of secure digital communication systems using dcsk ...** - abstract—chaos-based communication can be applied advantageously only if the property of chaotic systems is suitably exploited. chaos communication has been studied for ... binary csk digital ...

**a new chaotic secure communication system - people** - a new chaotic secure communication system zhengguo li, kun li, changyun wen, and yeng chai soh abstract— this paper proposes a digital chaotic secure commu-nication by introducing a concept of magnifying glass, which is used to enlarge and observe minor parameter mismatch so as to increase the sensitivity of the system. the encryption method is

**cambridge university press edward ott frontmatter more ...** - frontmatter more information ... 0521811961 - chaos in dynamical systems, second edition edward ott frontmatter more information " , ' " " 0 0 " 0 9 " 0

**digital chaotic communications - smartech**

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**home** - digital chaotic communications approved by: dr. thomas d. morley, advisor dr. w. marshall leach, co-advisor school of mathematics school of electrical and **new communication schemes based on adaptive synchronization** - three different kinds of communication schemes, such as chaotic masking, chaotic shift key, and chaotic modulation, are all proposed by modified adaptive synchronization method. during the same time when some communication schemes were proposed based on chaos synchronization, some cryptography and cryptanalysis work was also pre- **8803 - nonlinear dynamics and applications spring 2018** - chaos. quantification of chaos. basics of nonlinear time series analysis. applications to chaos synchronization, chaos-based communication, chaos control, and neuromorphic computing. tia: systems and controls. prerequisites math 2401 or 2411 or equivalent. math 2403 or 2413 or equivalent. cee/isye/math 3770 or isye 2027 or equivalent. textbooks **chaos-based fm signals: application and implementation issues** - chaos-based fm signals: application and ... this is the case in communication schemes such as fm ... digital object identifier 10.1109/tcsi.2003.815222 **a secure chaos-based image cryptosystem with an improved ...** - a secure chaos-based image cryptosystem with an improved sine key generator characteristic. recent methods have been reported [24, 40] to avoid successful known/chosen plain image attacks by using plain image diffusion strategies. for instance, in [24] all plain image pixels are summed with chaotic sequences **journal of computing: a chaos-based image encryption ...** - the chaos-based encryption was first proposed by mathews [9], since then, many chaos-based digital image encryption schemes have been proposed and analyzed in the literature. among these encryption schemes, one-dimensional and two-dimensional chaotic systems, such as logistic map, unimodal skew tent map, **high security nested pwlcmm chaotic map bit-level ...** - which reduces the encryption performance [1]. the chaos based multimedia files encryption is not new idea. mat-thew [2] was the first step in this line of research. large amount of work using digital chaotic techniques to construct cryptosystems has been studied and has attracted more and more attention in the last years [3-19]. re- **ieee transactions on circuits and systems—i: regular ...** - in the presence of noise. among the many chaos-based digital schemes proposed, the chaos shift keying (csk) and differential csk (dcsk) schemes are the most widely studied [3]–[5]. typically, in a digital chaos-based communication system, digital symbols are mapped to nonperiodic chaotic basis func- **lorenz-based chaotic secure communication schemes - ubicc** - chaos based secure communication has been of much interest in the recent time since it offers potential advantage over conventional methods due to its simplicity [3] and high unpredictability which means higher security. besides, analog implementation is possible [5]. many chaotic secure communication schemes **chaotic signal detection and estimation based on attractor ...** - and schemes based on digital chaos shift keying (dcsk). it is then demonstrated how this detection scheme can be used to develop a secure communication protocol using chaotic signals. using this protocol, both “1s” and “0s” are coded as signals that are spectrally identical yet lie on different manifolds, thus are easily separable from ... **71 african journal of information and communication ...** - user digital communication systems and chaos-based communications is given. this is followed by a discussion of the issues that arise in a hardware implementation for the chaos-based system. the design of the implemented transceiver is then described, along with the details of the testing employed in the evaluation of **chaos in dynamical systems - mit mathematics** - chaos in movies. canyouseeitnow? predictable chaotic. semyon dyatlov chaos in dynamical systems jan 26, 2015 3 / 23. media embedded by media9 [0.40(2014/02/17)] **stability of observer-based chaotic communications for a ...** - stability of observer-based chaotic communications for a class of lur'e systems ... methods of chaos communication can be classified into the following basic categories: (a) chaos ... munication and csf for digital communication. in the sequel, we will focus on analog communication

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