# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPTIMIZED PID CONTROLLER DESIGN FOR ELECTRIC FURNACE TEMPERATURE</td>
<td>1</td>
</tr>
<tr>
<td>SYSTEMS WITH NELDER MEAD ALGORITHM</td>
<td></td>
</tr>
<tr>
<td>Sinlapakun, Vunlop ; Assawinchaichote, Wudhichai</td>
<td></td>
</tr>
<tr>
<td>NUDE IMAGE CLASSIFICATION USING ROUGH SET ANALYSIS</td>
<td>5</td>
</tr>
<tr>
<td>Srisa-an, Chetneti</td>
<td></td>
</tr>
<tr>
<td>AN ALTERNATIVE SR SPATIAL ENHANCEMENT BASED ON ADAPTIVE MERIDIAN</td>
<td>10</td>
</tr>
<tr>
<td>FILTER AND GOM REGISTRATION FOR SEVERE NOISY BLURRED VIDEOS</td>
<td></td>
</tr>
<tr>
<td>Thakulsukanant, Kornkamol ; Patanavijit, Vorapoj</td>
<td></td>
</tr>
<tr>
<td>A DETERMINISTIC METHOD FOR SEARCHING THE MAXIMUM POWER POINT OF A PV</td>
<td>15</td>
</tr>
<tr>
<td>PANEL</td>
<td></td>
</tr>
<tr>
<td>Nhan Thanh Tong ; Kamolpattana, Krissudin ; Pora, Wanchalerm</td>
<td></td>
</tr>
<tr>
<td>RELIABILITY ASSESSMENT TOOL FOR RADIAL AND LOOP DISTRIBUTION SYSTEMS</td>
<td>21</td>
</tr>
<tr>
<td>USING DIGSILENT POWERFACTORY</td>
<td></td>
</tr>
<tr>
<td>Suaprapan, Chatrapat ; Jirapong, Peerapol ; Bunchoo, Phattamaporn ; Thavarak, Panida</td>
<td></td>
</tr>
<tr>
<td>RECLOSER-FUSE COORDINATION IMPROVEMENT FOR DISTRIBUTED GENERATION</td>
<td>27</td>
</tr>
<tr>
<td>INSTALLED CAPACITY ENHANCEMENT IN ELECTRICAL DISTRIBUTION SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>Supannon, Autthaporn ; Jirapong, Peerapol ; Thavarak, Panida ; Burana, Sattawat</td>
<td></td>
</tr>
<tr>
<td>GIS APPLICATION TO DISTRIBUTION SUBSTATION PLANNING IN MEA’S POWER</td>
<td>33</td>
</tr>
<tr>
<td>SYSTEM</td>
<td></td>
</tr>
<tr>
<td>Phayomhom, A. ; Rugthaicharsonecheep, N. ; Chaitusaney, S.</td>
<td></td>
</tr>
<tr>
<td>TRAM AND TROLLEYBUS NET TRACTION ENERGY CONSUMPTION COMPARISON</td>
<td>39</td>
</tr>
<tr>
<td>Mwambeleko, Joachim Julius ; Kulvorawanichpong, Thanatchai ; Greysen, Kenedy Atilla</td>
<td></td>
</tr>
<tr>
<td>COLLISION-AWARE SEQUENTIAL DISTRIBUTED DETECTION WITH SENSOR</td>
<td>44</td>
</tr>
<tr>
<td>CENSORING IN RANDOM-ACCESS WSNS</td>
<td></td>
</tr>
<tr>
<td>Laitrakuny, Seksan ; Covle, Edward J.</td>
<td></td>
</tr>
<tr>
<td>COMPUTATION AND EXPERIMENTS OF 10 GBS OPTICAL ACCESS NETWORK WITH</td>
<td>50</td>
</tr>
<tr>
<td>LONG REACH AND A LARGE NUMBER OF SUBscribers</td>
<td></td>
</tr>
<tr>
<td>Boriboon, Budsara ; Worasutcheep, Duang-rudee ; Shimizu, Satoshi ; Wada, Naoya</td>
<td></td>
</tr>
<tr>
<td>IMPACTS OF PV POWER PLANTS ON DISTRIBUTION GRID FOR VOLTAGE STABILITY</td>
<td>56</td>
</tr>
<tr>
<td>AND ECONOMIC VALUES</td>
<td></td>
</tr>
<tr>
<td>Pattaraprakorn, Woraratana ; Bhasaputra, Pornraapeepat ; Pattanasirichotigul, Jedsada</td>
<td></td>
</tr>
<tr>
<td>DESIGN OF 2DOF CONTROLLER FOR LLC CURRENT-RESONANT DC-DC CONVERTERS</td>
<td>62</td>
</tr>
<tr>
<td>WITH DELAY TIME</td>
<td></td>
</tr>
<tr>
<td>Umetsu, Takamichi ; Suzuki, Takehiro ; Higuchi, Kohji ; Jiraseseemornkul, Kamon</td>
<td></td>
</tr>
<tr>
<td>ROBUST AND LOW-COST OPTICAL MARK RECOGNITION FOR AUTOMATED DATA</td>
<td>68</td>
</tr>
<tr>
<td>ENTRY</td>
<td></td>
</tr>
<tr>
<td>Sanguansat, Parinya</td>
<td></td>
</tr>
<tr>
<td>LOAD FREQUENCY CONTROL IN POWER SYSTEM WITH HYDRO TURBINE UNDER</td>
<td>73</td>
</tr>
<tr>
<td>VARIOUS CONDITIONS</td>
<td></td>
</tr>
<tr>
<td>Mahdavian, M. ; Shahgholian, G. ; Janghorbani, M. ; Soliani, B. ; Wattanapongsakorn, N.</td>
<td></td>
</tr>
<tr>
<td>UBIQUITOUS COMPUTING TECHNOLOGIES AND CONTEXT AWARE RECOMMENDER</td>
<td>78</td>
</tr>
<tr>
<td>SYSTEMS FOR UBIQUITOUS LEARNING</td>
<td></td>
</tr>
<tr>
<td>Thiprak, Sukanya ; Kurutach, Werakul</td>
<td></td>
</tr>
<tr>
<td>EXPERIMENTAL STUDY OF BIDIRECTIONAL CONFIDENTIAL WITH MEDIAN FILTER ON</td>
<td>84</td>
</tr>
<tr>
<td>GLOBAL BASED OPTICAL FLOW MODEL UNDER NON GAUSSIAN NOISE</td>
<td></td>
</tr>
<tr>
<td>CONTAMINATION</td>
<td></td>
</tr>
<tr>
<td>Kesrvarat, Darun ; Patanavijit, Vorapoj</td>
<td></td>
</tr>
<tr>
<td>IMPACT OF HIGH WPPS PENETRATION ON VIETNAM POWER SYSTEM</td>
<td>89</td>
</tr>
<tr>
<td>Hanh Thi Nguyet Nguyen ; Vittal, Vijay</td>
<td></td>
</tr>
<tr>
<td>STOCHASTIC MULTIPLE OBJECTIVE ELECTRIC GENERATION EXPANSION PLANNING</td>
<td>95</td>
</tr>
<tr>
<td>Coit, David W. ; Selcuklu, Saltuk ; Chatwattanassri, Nida ; Wattanapongsakorn, Naruemon</td>
<td></td>
</tr>
<tr>
<td>A LOW-VOLTAGE AND LOW-POWER MULTIPLE-INPUT FLOATING-GATE FDCCII</td>
<td>101</td>
</tr>
<tr>
<td>Kumngern, Montree ; Khutek, Fabian</td>
<td></td>
</tr>
<tr>
<td>EFFECT OF AUDITORY STIMULUS IN EEG SIGNAL USING A BRAIN-COMPUTER</td>
<td>106</td>
</tr>
<tr>
<td>INTERFACE</td>
<td></td>
</tr>
<tr>
<td>Naraballobh, Juti ; Thanapatay, Dusit ; Chinnrungrueng, Jatuporn ; Nishihara, Akinori</td>
<td></td>
</tr>
</tbody>
</table>
IN-MOLE-FRACTION OF INGAAS INSERTION LAYERS EFFECTS ON THE STRUCTURAL AND OPTICAL PROPERTIES OF GSb QUANTUM DOTS GROWN ON (100) GaS SUBSTRATE

Phukkalanun, T.; Tippinit, J.; Asawamethapant, W.; Prongjit, P.; Ratanathammaphan, S.

LOCKED RANGES OF FREQUENCY DIVIDER BASED ON INJECTION-LOCKED RELAXATION OSCILLATOR

Kitipongvanatta, A.; Koseyaporn, J.; Jeamsaksiri, J.; Hansawangkit, J.; Chulajata, T.; Sedtheetorn, P.

FLEXIBLE INPUT TRANSFORM ARCHITECTURE FOR HEVC ENCODER ON FPGA

Arapalayachepreepcha, P.; Purnrin, S.; Supmunchar, B.; Boonchuay, B.

FABRICATION OF LATERAL INAS QUANTUM-DOT-MOLECULES ON INGAAS SQUARE-LIKE NANOHOLE TEMPLATES BY 2-STEP GROWTH TECHNIQUE USING MOLECULAR BEAM EPITAXY (MBE).

Prapasawat, N.; Panyakeow, S.; Prongjit, P.; Patchareewan, K.; Ratanathammaphan, S.

A NEW MODEL FOR PREDICTING THE EFFECT OF TEMPERATURE AND DEVICES DIMENSION ON THRESHOLD VOLTAGE OF PMOS IN VLSI.

Ruangphanit, A.; Poyai, A.; Sakuna, N.; Niemcharoen, S.; Muangblua, R.

USING MISCLASSIFICATION DATA TO IMPROVE CLASSIFICATION PERFORMANCE

Pruengkarn, R.; Ratchakoon, F.; Chun Che, W.; Wong, K.

AN INTEGRATED MODEL FOR LEARNING STYLE CLASSIFICATION IN UNIVERSITY STUDENTS USING DATA MINING TECHNIQUES

Paireekreng, W.; Prawatanprasut, T.

A FAST VOLTAGE SAG DETECTOR BASED ON PEAK DETECTION

Sillapanvicharn, Y.; Olthachai

DESIGN AND IMPLEMENTATION OF A MICROINVERTER FOR SOLAR PV ROOFTOPS

Sulong, D.; Jeraputra, C.; Chitchaval

A NEW RATE OPTIMIZATION TECHNIQUE FOR FEMTOCELL NETWORKS

Hansawangkit, J.; Jidapa, S.; Chulajata, T.; Sedheetorn, P.; Pongsatorn, P.

THE MAGNETOTRANSISTOR FOR 2-AXIS MAGNETIC FIELD MEASUREMENT IN CMOS TECHNOLOGY

Leepattarapongpan, G.; Phetchakul, T.; Pengpad, P.; Srinapat, A.; Jeamsaksiri, J.; Wutthinan, P.; Chasichat, E.; Ratanathammaphan, S.

A DYNAMIC ALMOST BLANK SUBFRAME SCHEME FOR VIDEO STREAMING TRAFFIC MODEL IN HETEROGENEOUS NETWORKS

Daeinabi, A.; Sandrasegaran, K.; Barua, S.

EVALUATION OF TRANSFORMER LOADING AND ENERGY LOSS FOR INCREASING ENERGY EFFICIENCY IN DISTRIBUTION SYSTEM

Krishnamoorthy, S.; Jayabal, D.

POWER QUALITY IMPACT STUDY AND ANALYSIS OF ELECTRICAL POWER EFFICACY IN SUGAR INDUSTRY

Arumwattanakan, W.; Boonradoon, N.; Sana

IMPEDEANCE IMPROVEMENT WITH CURVED MULTILAYER STRIP DIPOLE ANTENNA FOR RFID TAG

Saetia, C.; Summart, S.; Thongsupa, C.

MONITORING OF MICROBIAL CANNED FOOD SP OILAGE AND CONTAMINATION BASED ON E-NOSE FOR SMART HOME

Chongthanaphisut, P.; Preevitra, W.; Seesawad, T.; Kercharoeng, T.; Teerakiat, P.

FACIAL AGE ESTIMATION USING A HYBRID OF SVM AND FUZZY LOGIC

Hadhiamr, P.; Chittaya, W.; Wongthanavasu, S.

SFG REALIZATION OF GENERAL NTH-ORDER ALLPASS VOLTAGE TRANSFER FUNCTIONS USING VDBAS

Onjan, O.; Suppakulpan, T.; Tangsirirat, W.

N×N CYCLIC AWG WITH LOW AND UNIFORM INSERTION LOSSES ACHIEVED BY INTRODUCING ARRAY OF TAPERED WAVEGUIDES

Tippsit, J.; Asawamethapant, W.; Boonchuay, B.
THE PARAMETERIZATION OF ALL STABILIZING TWO-DEGREE-OF-FREEDOM MODIFIED REPEATED CONTROLLERS FOR MULTIPLE-INPUT/MULTIPLE-OUTPUT PLANTS ............................................................................................................................... 212

Yun Zhao ; Sakunothi, Tatatsuyu ; Yamauchi, Kou ; Smith, Michael ; Natvarni ; Yamaguchi, Hiroki

DEVELOPMENT OF ION SENSITIVE FIELD EFFECT TRANSISTOR FOR URINARY MICROALBUMIN DETECTION BY SILANIZATION ............................................................................................................................... 216

Pinithowng, Wannisa ; Pijitrojana, Wanchai

HIERARCHICAL CONTROL STRATEGIES IN AC MICROGRIDS ............................................................................................................................... 220

Khongkhachat, Samkik ; Khomfai, Surin

AN EARLY EXPLORATORY METHOD TO AVOID LOCAL MINIMA IN ANT COLONY SYSTEM ............................................................................................................................... 226

Satukitchai, Thanet ; Jearanaitsanakij, Kietkhal

AU SOLAR TRACKING SYSTEM ............................................................................................................................................................................................... 231

Singh, Angadpreet ; Aphiratsakun, Narong

A COMPARATIVE STUDY OF VIDEO SIGNALS FOR NON-CONTACT HEART RATE MEASUREMENT ............................................................................................................................................................................................................................................................... 235

Lueangwattana, Chan; ; Kondo, Toshiaki ; Haneishi, Hideaki

A CASE FOR MALWARE THAT MAKE ANTIVIRUS IRRELEVANT ............................................................................................................................... 240

Thamsirirak, Nathanon ; Seethongchuen, Thanayut ; Ratanavorabhan, Parut

AN IMAGE TAMPER DETECTION AND RECOVERY METHOD BASED ON SELF-EMBEDDING DUAL WATERMARKING ............................................................................................................................... 246

Kiatpan, Savita ; Kondo, Toshiaki

UNIFYING HYDROLOGICAL TIME SERIES DATA FOR A GLOBAL WATER PORTAL ............................................................................................................................................................................................... 252

Suvannawiwatt Wittayapong, Pathai ; Netramai, Chayakorn ; Utech, Michael ; Schlebusch, Heinz-Josef ; Lichter, Horst

CYBERSECURITY CHALLENGES FOR BHUTAN ............................................................................................................................................................................................... 257

Choejey, Pema ; Chun Che Fung ; Kok Wai Wong ; Murray, David ; Sonam, Dawa

BATTERY MONITORING SYSTEM BY DETECTING DEAD BATTERY CELLS ............................................................................................................................................................................................... 262

Hommulai, Chawikarn ; Khomfai, Surin

A ROBUST METHOD FOR DROWSINESS DETECTION USING DISTANCE AND GRADIENT VECTORS ............................................................................................................................................................................................... 267

Sookkraja, Sor ; Kondo, Toshiaki ; Bunnun, Pished

A ROBUST STEREO MATCHING METHOD USING UNIT GRADIENT VECTORS ............................................................................................................................................................................................... 272

Sopajitwattana, Papornpan ; Kondo, Toshiaki ; Kongprawechnon, Wari

SPECKLE REDUCTION OF ULTRASOUND IMAGES BASED ON LOCALLY REGULARIZED SAVITZKY-GOLAY FILTERS ............................................................................................................................................................................................... 277

Toonkum, Polliakit ; Chiruangrung, Chedusada

THE STRATEGY TO SUSTAINABLE SHARING RESOURCES REPOSITORY FOR MASSIVE OPEN ONLINE COURSES IN THAILAND ............................................................................................................................................................................................... 282

Chuwatintra, Sita ; Tammaratatananont, Pornchai ; Luokok, Sudhirabong ; Krairaks, Kamthorn ; Junlouchai, Chanchai ; Chai, Wasan Na ; Wuvitwattachai, Chai

EFFECTS OF RING METALLIC OBJECTS ON SPECIFIC ABSORPTION RATE IN HUMAN HEAD CAUSED BY MOBILE PHONE ............................................................................................................................................................................................... 287

Srirasoset, Chaloeomphol ; Prakasunal, Aphibal

A REAL-TIME ANALYSIS SYSTEM IN QUALIFYING PROCESS OF MAGNETIC HARD DISK DRIVES ............................................................................................................................................................................................... 293

Eammata, Wari ; Kumkorn, Pinit

CLOSED-LOOP SYSTEM IDENTIFICATION AND CONTROLLER TUNING FOR CONSTANT-VALUE CONTROL SYSTEMS ............................................................................................................................................................................................... 297

Matsui, Yoshihiro ; Masuda, Shiro ; Ayano, Hideki ; Higuchi, Koji ; Nakano, Kazushi

SUITABLE POWER TRANSFORMERS FOR SOLAR FARM APPLICATIONS ............................................................................................................................................................................................... 302

Khomkook, Panya ; Suwan-ngam, Warachart ; Khomfai, Surin

A COMPARATIVE STUDY OF IONOSPHERIC PROFILE PARAMETERS B0 AND B1 OVER CHUMPON WITH IR-2012 ............................................................................................................................................................................................... 308

Jarnjareegulgar, Panyawi ; Supinith, Pornchai ; Wichai, Sripanich, Norasit ; Ishii, Mamoru ; Marayama, Takashi

A SURVEY OF DIRECTION OF ARRIVAL ESTIMATION TECHNIQUES AND IMPLEMENTATION OF CHANNEL ESTIMATION BASED ON SCME ............................................................................................................................................................................................... 313

Barua, Shouman ; Sindh Cong Lam ; Ghosa, Pantha ; Shiqi Xing ; Sandrasegaran, Kumbesan

LEVEL-SHIFT SPACE VECTOR PULSE WIDTH MODULATION FOR A NINE-SWITCH INVERTER ............................................................................................................................................................................................... 318

Jarutus, Neerakorn ; Kumssuan, Yuttana
ENHANCED DEVICE PERFORMANCE USING LIGHTLY DOPED CHANNEL JUNCTIONLESS ACCUMULATION-MODE FINFET ................................................................. 323
Pal, Pankaj Kumar; Nehra, Dilshuk; Kaushik, Brajesh Kumar; Dasgupta, Sudeb

VERTICAL EDGE DETECTION-BASED AUTOMATIC OPTICAL INSPECTION FOR SOLDER JET BALL JOINT DEFECT ON HEAD GIMBAL ASSEMBLY ................................................................. 328
Tambura, A.; Yano, M.; Tawara, Y.; Ishida, Y.

AN OPTIMAL DYNAMIC VIRTUAL NETWORK ALLOCATION ALGORITHM FOR CLOUD RESIDENT DATA CENTER ................................................................. 334
Tubburee, Ong-ard; Kumsuwan, Yuttana

A MINIATURIZED ASYMMETRICAL BANDPASS FILTER USING THE INDUCTIVE LOAD AND THE COUPLED LINES ................................................................. 339
Siripon, N.; Mettrakulwat, P.

EFFECTS OF CONTAMINATIONS IN RUBBER LATEX ON RELATIVE PERMITTIVITY AT 0.5–2.0 GHz ................................................................................................. 343
Somwong, Sahapong; Wanchum, Phirote; Chongcheawchaman, Mitchai

FINDING A SET OF HIGH-FREQUENCY QUERIES FOR HIGH-FREQUENCY-QUERY-BASED FILTER FOR SIMILARITY JOIN ................................................................................................................................. 347
Kunamont, Kamolwan; Chongstitwattana, Jaruloj

PREDICTING THE MEDIUM-TERM ELECTRICITY LOAD DEMAND OF THAILAND USING THE GENERALIZED ESTIMATING EQUATION AND THE LINEAR MIXED EFFECT MODEL ................................................................................................................................. 353
Saengphong, Nikorn; Thongyummead, Unchalee

THE EFFICIENCY OF DIELECTRIC HEATING BY USING SYMMETRICALLY ELECTRIC POWER PORTS ON ELECTRODE PLATE FOR PEST CONTROL ................................................................................................................................. 358
Santalalum, Samran; Thongsopa, Chunchai; Thosdeekoraphat, Thanaset

PEA AUTOMATIC METER READING SYSTEM: PROGRESS AND LESSONS LEARNED ................................................................................................................................. 362
Ladawat, Worawat; Naietladdaron, Sumate

A NOVEL ZERO-CURRENT-SWITCHING OF LEADING AND LAGGING-LEG SWITCHES FOR FULL-BRIDGE PHASE-SHIFTED PWM DC-DC CONVERTER ................................................................................................................................. 367
Songboonkaew, J.; Jangwanit, A.

THE BANDWIDTH ENHANCEMENT OF RECTANGULAR SLOT ANTENNA WITH L-SHAPED AND DOUBLE I-SHAPED Stub TUNING FOR WLAN/WIMAX APPLICATIONS ................................................................................................................................. 372
Ruengkham, Amnii; Innok, Apany; Naktong, Watcharaphon; Piyananboonmae

ACOUSTIC-TO-ARTICULATORY INVERSION USING PARTICLE SWARM OPTIMIZATION ................................................................................................................................. 376
Fairee, Suthida; Sirinovakul, Booncharoen; Prom-on, Sinthem

IMPACT OF SOLAR AND WIND POWER DEVELOPMENT PLAN IN THAILAND BY CONSIDERING FREQUENCY RESPONSE OF POWER SYSTEM ................................................................................................................................. 382
Bhasaputra, Pornnapiwat; Sansilah, Chokechai; Pattaraprakorn, Woraratana

COVERAGE MAXIMIZATION WITH SLEEP SCHEDULING FOR WIRELESS SENSOR NETWORKS ................................................................................................................................. 388
Danpratchadakorn, Chanit; Pornanual, Chotipat

ADTHA: THE IMPROVEMENT OF CLUSTERING ALGORITHM ................................................................................................................................. 394
Laowan, Adiba

THE TRANSVERSE VECTORIAL FINITE ELEMENT BEAM PROPAGATION METHOD WITH RECTANGULAR NODAL ELEMENT FOR OPTICAL WAVEGUIDE ANALYSIS ................................................................................................................................. 400
Hongthong, Marinda; Angkaw, Tuptin

LOW POWER STT MRAM CELL WITH ASYMMETRIC DRIVE CURRENT VERTICAL GAA SELECT DEVICE ................................................................................................................................. 406
Verma, Shyam; Mahawar, Sanjay; Kaushik, Brajesh Kumar

AC POWER METER DESIGN FOR HOME ELECTRICAL APPLIANCES ................................................................................................................................. 411
Tamkittikhun, Nattachart; Tantidham, Thitinan; Intakot, Prawadech

A HIGH GAIN DIPOLE ANTENNA SYSTEM WITH REFLECTIVE METAL SHEET ................................................................................................................................. 417
Wen-Hsiu Hsu; Shan-Cheng Pan

EFFECTS OF OVERVOLTAGE ON GROUND GRID SYSTEM OF HIGH VOLTAGE SUBSTATION ................................................................................................................................. 421
Luewattana, Krong; Pruksamubal, Aphiwal

CONTINUOUS SVM STRATEGY WITH CURRENT SECTOR CONTROL CONCEPT FOR A THREE-PHASE THREE-LEVEL PFC RECTIFIER ................................................................................................................................. 425
Tubbueree, Ong-ard; Kamaseewan, Yuttana

CHARACTERISTICS OF IONOSPHERE AT EQUATORIAL AND MIDDLE LATITUDE ZONES DURING SOLAR MAXIMUM ................................................................................................................................. 430
Sukcharoen, Tharapong; Falin Wu; Jingrong Weng
EFFECT OF UPGRADING PRIMARY FEEDERS FROM RADIAL TO LOOP ARRANGEMENT ON ELECTRICAL DISTRIBUTION SYSTEM PERFORMANCE ................................................................. 436

Jirapong, Peerapop ; Bunchoo, Phattamaporn ; Thararak, Panida ; Supannon, Authaporn ; Burana, Sattawat

LOW-COST HARDWARE & CONTROL DESIGN OF AN INVERTED PENDULUM USING CONVENTIONAL, FUZZY AND HYBRID TECHNIQUES ................................................. 442

Afif, Nida ; Asghar, Shahriz ; Abbasi, Abdul Rehaman ; Wallam, Fahad ; Saeed, Qamar

COORDINATED CONTROL OF DFIG WIND TURBINE AND SVC FOR ROBUST POWER SYSTEM STABILIZATION ........................................................................................................... 448

Usong, Sothu ; Ngaroo, Issarachai

TRANSMISSION THROUGH TWISTED CLAD ELLIPTICAL CLAD GUIDE WITH CHIRAL NIHILITY CORE ......................................................................................................................... 454

Iqbal, N. ; Choudhury, P.K.

INDEX GENERATION FOR SATELLITE IMAGE RETRIEVAL .................................................................................................................. 458

Phuthong, Patrawuth ; Lerdsumvichai, Charay ; Srestasathier, Panu

A SOFTWARE TOOL FOR INDUCED VOLTAGES AND CURRENTS CALCULATION CAUSED BY LIGHTNING ELECTROMAGNETIC FIELD IN PV SYSTEMS ........................................... 464

Fuangfung, Yuttana ; Sinhusontithat, Salilitep ; Yuthagowith, Peerawat

ON OPTIMIZING TRANSMIT ANTEENA PLACEMENT FOR DOWNLINK DISTRIBUTED ANTENNA SYSTEMS WITH ZERO-FORCING BEAMFORMING ............................................ 468

Thakerd, Thanitp ; Santipach, Wiroonsak

KERNEL MODELING ON GAUSSIAN PROCESS TO ELIMINATE POWER LINE INTERFERENCE FOR ECG SIGNAL ................................................................. 473

Ploysuwana, Tuchsana ; Atsavathavichok, Pramukpong

DESIGN AND OPTIMIZATION OF A SMALL-SCALE LINEAR ELECTROMAGNETIC ENERGY HARVESTER .......................................................................................................................... 478

Sudhawiyangkul, Thapanun ; Isarakorn, Don

A MEMRISTOR EMULATOR CIRCUIT BASED ON OPERATIONAL TRANSCONDUCTANCE AMPLIFIERS ......................................................................................................................... 484

Kumnegern, Montree ; Mounsena, Phichet

A DUAL-BAND FRACTAL SLOT ANTENNA FED BY FRACTAL CAPACITIVE COUPLING ................................................................................................................................. 489

Suangun, Thanakam ; Wongsin, Norakamon ; Mahatthanatapibench, Chatree ; Akkaraekthalin, Prayoot

THE OPTIMIZATION OF SERIES RESONANT LLC HALF-BRIDGE CONVERTER WITH CORELESS TRANSFORMER DESIGN IN A LOW VOLTAGE DC DISTRIBUTION SYSTEM ........................................ 493

Pairindra, Worapong ; Khomfai, Surin

OTA-C DIFFERENTIATOR FOR LARGE TIME CONSTANT APPLICATIONS .................................................................................................. 498

Thanapat, Surachoke

PAGE SEGMENT RECOMMENDATION USING N-GRAM FOR SENSEMAKING TASKS BASED ON NOTE TAKING ...................................................................................................................... 502

Thanom, Burin ; Ramingwong, Lachana

ADAPTIVE ON-LINE TRACKING OF POWER SYSTEM HARMONICS USING ADALINE .................................................................................................................. 508

Wang, Jingjing ; Jindapetch, Nattha ; Sengchuei, Kiattisak

TRACKING AND MODELING HUMAN IRIS SURFACE DEFORMATION ................................................................................................................................. 514

Songjang, Tusni ; Thainimit, Somying

ANALYSIS OF RECIPROCAL LOSSY PERIODIC TRANSMISSION-LINE STRUCTURES USING BI-CHARACTERISTIC-IMPEEDANCE TRANSMISSION LINES AND META-SMITH CHARTS ................................................................................................................................. 519

Lamultree, Suthasinee ; Torrungrueng, Danai ; Akkaraekthalin, Prayoot

A SIMPLE CAMERA CALIBRATION METHOD FOR VEHICLE VELOCITY ESTIMATION ................................................................................................................................. 524

Do, Viet-Hoa ; Nghiem, Le-Hoa ; Pham Thi, Ngoc ; Pham Ngoc, Nam

A PSPWM WITH VARIABLE FREQUENCY CONTROL FOR A TWO-OUTPUT THREE-LEVEL SERIES RESONANT INVERTER ........................................................................................................ 529

Meersrisuk, Wattanu ; Jangwanitlert, Anuwat ; Sisavan-ngam, Warachart

RICE CROP CALENDAR BASED ON PHENOLOGY ANALYSIS FROM TIME-SERIES IMAGES .................................................................................................................. 534

Soontranon, Narut ; Srestasathier, Panu ; Rakwatin, Preesan

A STUDY OF RICE PHENOLOGICAL DEVELOPMENT STAGES ESTIMATION FROM FIELD SERVER IMAGES ........................................................................................................ 539

Tangpattanakul, Pannawadee ; Soontranon, Narut ; Lawawirojwong, Siam ; Rakwatin, Preesan ; Pannangpetch, Krirk

THE DESIGN OF A SELF IMPROVING PID CONTROLLER WITH A REPETITIVE-CONTROL PLUGIN ................................................................................................................................. 543

Mosuwan, Anon ; Pora, Wanchalerm
PERFORMANCE MONITORING FOR EXTRACTION SYSTEM IN TAPIOCA STARCH INDUSTRY USING STATE-SPACE MODEL

Sripraveen, Prasit ; Kasetkasem, Teerasit ; Rakwatin, Preesan ; Kumazawa, Itsuo ; Chanwimaluang, Thitiporn

DYNAMIC DISTRIBUTE ROUTE RECOMMENDATION SYSTEM FOR MULTIPLE DESTINATIONS

Sub-r-pa, Chayanon ; Chakraborty, Goutam

ONLINE ESTIMATION OF TAPIOCA STARCH MOISTURE CONTENT IN A FLASH DRYER

Panyavai, Grisana ; Koolpiruck, Diew ; Songkasiri, Warinthorn

THE ACTIVE POWER AND REACTIVE POWER CONTROL FOR THREE-PHASE GRID-CONNECTED PHOTOVOLTAIC INVERTERS

Suyata, Thong-In ; Po-Ngam, Sakorn ; Tarasantisuk, Chanlith

FINE-TUNING OF WAVE-PIPELINES ON FPGA DEVELOPED BY THE RTL DESIGN

Sato, Tomoaki ; Chivapreecha, Sorawat ; Moungnoul, Phichet

PRELIMINARY STUDY OF RELIABLE BROADCAST PROTOCOL ON 802.11P PUBLIC TRANSPORT TESTBED

Pramuanyat, Nattakan ; Nakorn, Kutil Na ; Rojviboonchai, Kuitida

MOBILE DIGITAL RIGHT MANAGEMENT WITH ENHANCED SECURITY USING LIMITED-USE SESSION KEYS

Chokngamwong, Roongroj ; Jirabutr, Nattapong

A NOVEL WIDEBAND BANDPASS FILTER USING SQUARE LOOP RESONATOR AND THEE-COUPLED LINE LOAD

Punyawarin, S. ; Siripon, N.

ENSEMBLE THRESHOLD SEGMENTATION FOR HAND DETECTION

Runguangbaiyok, Sunthorn ; Duangsoithong, Rakkrit ; Chetpattananondh, Kanadi

RICE PHENOLOGY ESTIMATION BASED ON STATISTICAL MODELS FOR TIME-SERIES SAR DATA

Cota, Napat ; Kasetsakem, Teerasit ; Rakwatin, Preesan ; Chanwimaluang, Thitiporn ; Kumazawa, Itsuo

INVESTIGATION ON GTA WELD REPAIRS FOR GAS TURBINE BLADES

Deeen, Sumonmart ; Naksum, Nirut ; Mitsunsaitik, Chowart ; Nakbguentong, Jiradech ; Printrakoon, Waravut ; Maruaaynap, Taweeth

COMPARISON OF HEART RATE STATISTICAL PARAMETERS FROM PHOTOPLETHYSMOGRAPHIC SIGNAL IN RESTING AND EXERCISE CONDITIONS

Senghiphaphany, T. ; Tretrileucana, S. ; Chitsakul, K.
PERFORMANCE COMPARISON OF THREE-LEVEL AND MULTI-LEVEL FOR GRID-CONNECTED PHOTOVOLTAIC SYSTEMS .............................................................. 895
Boonmee, Chatchai ; Somboonsit, Pakorn ; Watjanateepin, Napat

PERFORMANCE ANALYSIS OF MULTI-CHANNEL MULTI-INTERFACE AODV IN IEEE-802.15.4 WSNs ................................................................. 900
Chaichana, Yuttana ; Teeraparkkajornud, Wiklom

AN ADVANCED FEEDBACK FILTERED-X LEAST MEAN SQUARE ALGORITHM FOR WIDEBAND NOISE REMOVAL ........................................... 906
Mohapatra, Shibabish ; Ke, Asutoh

PREDICTING TYPES OF CLOTHING USING SURF AND LDP BASED ON BAG OF FEATURES ............................................................ 911
Surakarin, Wisanut ; Chongstitvatana, Prabhas

A RADAR-CROSS SECTION OF A PASSIVE TAG ON DIELECTRIC MATERIAL IN AN RFID SENSOR APPLICATION ........................................... 916
Suvalak, Rattapon ; Phongcharoenpanich, Chuwong ; Torrungrueng, Danai ; Akkaraekthalin, Prayoot

TOTAL COVERAGE BASED REGRESSION TEST CASE PRIORITYZATION USING GENETIC ALGORITHM ................................................................. 920
Konsaard, Patipat ; Ramingwong, Lachana

TUNABLE CURRENT-MODE QUADRATURE OSCILLATOR USING CFTAS AND GROUNDED CAPACITORS ................................................................. 926
Phatsornsiri, Punnavich ; Lamun, Panit

THE SMALL AUTOMATION MACHINE FOR PRODUCE BIODIESEL BY USING THE WASTED COOKING OIL ................................................................. 930
Thonggook, Tawan ; Chimmanee, Sanon ; Kim, Chom

A COMPARISON OF SIMILARITY MEASURES FOR ONLINE SOCIAL MEDIA THAI TEXT CLASSIFICATION ................................................................. 934
Viriyavisuthisakul, Supatta ; Sanguansat, Parinya ; Charnekeitkong, Pisit ; Haruechaiyasak, Choochat

REDUCED-ORDER DYNAMIC QUANTIZER SYNTHESIS FOR DISCRETE-VALUED INPUT SYSTEMS ................................................................. 940
Savada, Kenji ; Shin, Seiichi

DESIGN AND FUNCTIONALITY TEST OF CHUNKED VIDEO STREAMING OVER EMULATED MULTI-PATH OPENFLOW NETWORK ................................................................. 946
Phyo May Thet ; Panwaree, Parichat ; Kim, JongWon ; Aswakul, Chaodit

A CAUSAL RELATIONSHIP MODEL OF ICT PROJECT MANAGERS' COMPETENCIES: A MULTI-GROUP ANALYSIS ................................................................. 952
Wiangnak, Visit ; Lekcharoen, Somchai

TRAFFIC SIGNAL CONTROL USING FUZZY LOGIC ................................................................. 958
Promvirak, Sakana ; Wuttidittachotti, Pongsak ; Thajchayapong, Suttipong

TRANSIENTS STATE ESTIMATION WITH MEASUREMENT NOISE ................................................................................................................................. 964
Suyaroj, Narat ; Premruedeepreecharn, Sutchai ; Watson, Neville R.

A MULTIBAND BANDPASS FILTER USING INTERDIGITAL AND STEP-IMPEDANCE TECHNIQUES FOR 4G, WIMAX AND WLAN SYSTEMS ................................................................. 970
Ketkuntod, Pongpat ; Chomtong, Pongsathorn ; Meesomklin, Suvaluck ; Akkaraekthalin, Prayoot

A MULTIBAND MONOPOLE ANTENNA WITH DOUBLE SQUARE SLOTS AND CAPACITIVE CPW FEED FOR LTE, WIMAX AND WLAN SYSTEMS ................................................................. 974
Singsara, P. ; Chomtong, P. ; Meesomklin, S. ; Akkaraekthalin, P.

PERFORMANCE EVALUATION OF SINGLE-STAGE AND TWO-STAGE SPECTRUM SENSING TECHNIQUES FOR COOPERATIVE COGNITIVE RADIO SYSTEMS UNDER SHADOWING ENVIRONMENTS ................................................................. 979
Dindom, Thinnapran ; Srisomboon, Kanabadee ; Lee, Wilaporn

M-LEARNING SYSTEM: A MOBILE LEARNING FOR ASTHMA ................................................................................................................................. 985
Praditsangthong, Ravivin ; Bhattarakosol, Pattarasinee

ATTITUDES TOWARDS TEXT-BASED CAPTCHA FROM DEVELOPING COUNTRIES ................................................................................................................................. 990
Nanglae, Nilobon ; Bhattarakosol, Pattarasinee

THE ACCEPTANCE OF E-LEARNING USING SEM APPROACH: A CASE OF IT LITERACY DEVELOPMENT FOR PIM STUDENTS ................................................................. 994
Wongvilaisakul, Wanvipa ; Lekcharoen, Somchai

OVERLAP ANALYSIS PROCESS: A NEW REQUIREMENT CAPTURING FROM UNCLEAR-POLICY ORGANIZATION ................................................................. 1000
Meeplang, Ayudthai ; Bhattarakosol, Pattarasinee

COMMENT ANALYSIS FOR FOOD RECIPE PREFERENCES ................................................................................................................................. 1004
Pugsaw, Pakawan ; Niyomvanich, Monsidee
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE BIOLOGICAL CHANNEL MODELLING OF IMPLANTABLE MEDICAL DEVICES</td>
<td>1008</td>
</tr>
<tr>
<td>Tupe-ping Li ; Yuan Yang ; Yong Gao</td>
<td></td>
</tr>
<tr>
<td>TATF: TEST AND TREAT FOLLOW-UP SYSTEM OF HIV CARRIERS IN THAILAND</td>
<td>1013</td>
</tr>
<tr>
<td>Somyanonthanakul, Rachasak ; Plodgratoke, Prapaipan</td>
<td></td>
</tr>
<tr>
<td>FEATURE SELECTION EXPERIMENTS ON EMOTIONAL SPEECH CLASSIFICATION</td>
<td>1017</td>
</tr>
<tr>
<td>Sukkhamnek, Piyawat ; Kasuriya, Sawit ; Theeramunkong, Thanaruk ; Wutiwiwat Chai ; Kamieda, Hiroaki</td>
<td></td>
</tr>
<tr>
<td>INTELLIGENT SYSTEM BASED SUPERVISION FOR ENERGY MANAGEMENT OF WATER</td>
<td></td>
</tr>
<tr>
<td>CHILLER PLANT</td>
<td>1021</td>
</tr>
<tr>
<td>Radeerom, Mouarithai ; Tharanathanathikorn, Kritsana</td>
<td></td>
</tr>
<tr>
<td>INTERPOLATION BASED POLYNOMIAL REGRESSION FOR EYE GAZING ESTIMATION:</td>
<td>1027</td>
</tr>
<tr>
<td>A COMPARATIVE STUDY</td>
<td></td>
</tr>
<tr>
<td>Rattanrom, Suwitchaya ; Aunsri, Nattapol ; Utama, Surapong</td>
<td></td>
</tr>
<tr>
<td>EXPLORING THE INTERNET OF “EDUCATIONAL THINGS” (IOET) IN RURAL</td>
<td></td>
</tr>
<tr>
<td>UNDERPRIVILEGED AREAS</td>
<td>1031</td>
</tr>
<tr>
<td>Pru, Putjorn ; Ang, Chee Siang ; Farzin, Deravi ; Chaiwit, Narong</td>
<td></td>
</tr>
<tr>
<td>DRUG-DRUG INTERACTIONS PREDICTION FROM ENZYME ACTION CROSSING</td>
<td>1036</td>
</tr>
<tr>
<td>THROUGH MACHINE LEARNING APPROACHES</td>
<td></td>
</tr>
<tr>
<td>Rojanasaro, Kohatu, N. ; Laohapensan, Teerasit</td>
<td></td>
</tr>
<tr>
<td>DESIGN OF POWER AMPLIFIER WITH BALANCED CIRCUIT PARAMETERS</td>
<td>1040</td>
</tr>
<tr>
<td>Pantawong, Theerasat ; Suebsomboon, Powena ; Chaisricharoen, Rongsan</td>
<td></td>
</tr>
<tr>
<td>PASSENGER MONITORING MODEL FOR EASILY ACCESSIBLE PUBLIC CITY TRAINS/</td>
<td>1044</td>
</tr>
<tr>
<td>TRAMS/TRAINS</td>
<td></td>
</tr>
<tr>
<td>Khoeblal, Roman ; Laohapensa, Teerasit ; Chaisricharoen, Rongsan</td>
<td></td>
</tr>
<tr>
<td>OF ONLINE COMMUNITY; IDENTIFYING MENTOR AND MENTEE WITH COMPATIBLE</td>
<td></td>
</tr>
<tr>
<td>DIFFERENT ATTRIBUTES AND DECISION TREE</td>
<td>1048</td>
</tr>
<tr>
<td>Nuanakaw, Pratya ; Temdee, Punnarumol</td>
<td></td>
</tr>
<tr>
<td>THE TRANSMISSION TIME ANALYSIS OF IPTV MULTICAST SERVICE IN SDN/OPENFLOW ENVIRONMENTS</td>
<td>1054</td>
</tr>
<tr>
<td>Rattanawadee, Pornipa ; Ruengsakulrach, Natchaphon ; Saichitch, Chaiyachet</td>
<td></td>
</tr>
<tr>
<td>BIOFEEDBACK CANE FOR STROKE PATIENT</td>
<td>1060</td>
</tr>
<tr>
<td>Laohapensan, T. ; Chandhaphun, S. ; Laohapensan, S. ; Vimolratanana, O.</td>
<td></td>
</tr>
<tr>
<td>IMPROVING BIG DATA ON RESEARCH AND EDUCATION NETWORKS USING FUTURE</td>
<td></td>
</tr>
<tr>
<td>INTERNET APPROACH: A CASE STUDY OF NETWORKS ANALYSIS</td>
<td>1069</td>
</tr>
<tr>
<td>Tanatpanawong, Panjai ; Donpongduang, Sokiat ; U-Aroon, Prasertsak</td>
<td></td>
</tr>
<tr>
<td>S-BOX VIRTUALIZED PLAYGROUNDS FOR AUTOMATED LIGHTWEIGHT EXPERIMENTS</td>
<td></td>
</tr>
<tr>
<td>ON SDN AND CLOUD</td>
<td>1074</td>
</tr>
<tr>
<td>Jungsu Han ; Jun-Sik Shin ; Kim, Jongwon</td>
<td></td>
</tr>
<tr>
<td>MULTIPATH RPL PROTOCOLS FOR GREENHOUSE ENVIRONMENT MONITORING SYSTEM BASED ON INTERNET OF THINGS</td>
<td></td>
</tr>
<tr>
<td>Thu Ngo Quynh ; Nien Le Manh ; Khoi Nguyen Nguyen</td>
<td>1078</td>
</tr>
<tr>
<td>SOFTWARE DEFINED BEARER INTERCLOUD NETWORKS SCIENTIFIC-BASED NETWORK</td>
<td></td>
</tr>
<tr>
<td>EXCHANGE FOR THE IEEE P2302 INTERCLOUD APPROACH</td>
<td>1084</td>
</tr>
<tr>
<td>Vij, Deepak ; Bernstein, David ; Morrey, Mohamed ; Grosso, Paolo ; Magadan, Thomas ; Willner, Alexander</td>
<td></td>
</tr>
<tr>
<td>A GENERIC ANALYTICAL MODEL OF FRACTANCE RESPONSE IN TIME DOMAIN</td>
<td>1090</td>
</tr>
<tr>
<td>Banchuim, Ravid ; Chaisricharoen, Rongsan</td>
<td></td>
</tr>
</tbody>
</table>

Author Index