TABLE OF CONTENTS

AASP-L1: DETECTION AND CLASSIFICATION OF ACOUSTIC SCENES AND EVENTS I

AASP-L2: DETECTION AND CLASSIFICATION OF ACOUSTIC SCENES AND EVENTS II

AASP-L3: SOURCE SEPARATION AND SPEECH ENHANCEMENT I

AASP-L4: SOURCE SEPARATION AND SPEECH ENHANCEMENT II

AASP-L5: SPATIAL AUDIO RECORDING AND REPRODUCTION

AASP-L6: MUSIC SIGNAL ANALYSIS, PROCESSING AND SYNTHESIS

AASP-L7: MUSIC INFORMATION RETRIEVAL

AASP-P1: ACOUSTIC ENVIRONMENTS AND MUSIC ANALYSIS

AASP-P2: MUSIC SOURCE SEPARATION AND SPATIAL AUDIO

AASP-P3: AUDITORY MODELING, MUSIC INFORMATION RETRIEVAL AND BIOACOUSTICS

AASP-P4: SOURCE SEPARATION AND MUSIC INFORMATION RETRIEVAL

AASP-P5: SENSOR ARRAY PROCESSING AND AUDITORY MODELING

AASP-P6: MUSIC SIGNAL ANALYSIS AND MULTIMEDIA

AASP-P7: ACTIVE NOISE CONTROL, SOURCE SEPARATION, AND SYSTEM IDENTIFICATION

AASP-P8: SPATIAL AUDIO, AUDIO ENHANCEMENT AND BANDWIDTH EXTENSION

AASP-P9: QUALITY MEASURES AND SENSOR ARRAY PROCESSING

AASP-P10: AUDIO SECURITY AND SOURCE SEPARATION

AASP-P11: AUDIO CODING AND ACOUSTIC EVENT DETECTION

AASP-P12: SENSOR ARRAY PROCESSING AND MEDICAL ACOUSTICS

AASP-P13: ACOUSTIC SCENE CLASSIFICATION AND MUSIC SIGNAL ANALYSIS

AASP-P14: ACOUSTIC EVENT DETECTION AND SPEECH ENHANCEMENT

AASP-P15: SPATIAL AUDIO RECORDING AND DETECTION AND CLASSIFICATION OF ACOUSTIC SCENES AND EVENTS

AASP-P16: MUSIC SIGNAL ANALYSIS, FEEDBACK AND ECHO CANCELLATION AND EQUALIZATION

BISP-L1: BIOMEDICAL IMAGE ANALYSIS

BISP-L2: BIOMEDICAL IMAGING

BISP-L3: BIOMEDICAL SIGNAL PROCESSING

BISP-P1: NEURO IMAGE AND SIGNAL PROCESSING

BISP-P2: BIO IMAGE AND SIGNAL PROCESSING

BISP-P3: BIOIMAGING AND ANALYSIS

BISP-P4: BIOINFORMATICS

BISP-P5: CARDIOLOGICAL SIGNAL PROCESSING

BISP-P6: MEDICAL IMAGING AND ANALYSIS

DISPS-L1: DESIGN AND IMPLEMENTATION OF EMERGING SIGNAL PROCESSING SYSTEMS: MACHINE LEARNING

DISPS-L2: ALGORITHM AND ARCHITECTURE CO-OPTIMIZATION

DISPS-P1: DESIGN AND IMPLEMENTATION OF EMERGING SIGNAL PROCESSING SYSTEMS: MACHINE LEARNING / NEUROMORPHIC COMPUTING / IOT

DISPS-P2: ALGORITHM AND ARCHITECTURE OPTIMIZATION

DISPS-P3: SIGNAL PROCESSING FOR EMERGING APPLICATIONS: FINTECH/AR-VR/ AUTONOMOUS VEHICLES

IVMSP-L1: IMAGE/VIDEO CODING I

IVMSP-L2: VIDEO ANALYSIS

IVMSP-L3: IMAGE ANALYSIS

IVMSP-L4: IMAGE RESTORATION

IVMSP-L5: INTERPOLATION AND SUPER-RESOLUTION

IVMSP-L6: ENHANCEMENT AND RESTORATION I

IVMSP-P1: IMAGE/VIDEO CODING II

IVMSP-P2: ENHANCEMENT AND RESTORATION II

IVMSP-P3: SEGMENTATION AND TRACKING

IVMSP-P4: IMAGE/VIDEO ANALYSIS I

IVMSP-P5: IMAGE/VIDEO ANALYSIS II

IVMSP-P6: RETRIEVAL

IVMSP-P7: IMAGE/VIDEO FEATURE EXTRACTION

IVMSP-P8: IMAGE FORMATION

IVMSP-P9: MOTION ESTIMATION AND TRACKING

IVMSP-P10: STEREOSCOPIC AND 3D PROCESSING

IVMSP-P11: IMAGE/VIDEO PROCESSING I

IVMSP-P12: IMAGE/VIDEO PROCESSING II

IFS-L1: INFORMATION FORENSICS AND SECURITY I

IFS-L2: INFORMATION FORENSICS AND SECURITY II

IFS-P1: FORENSICS, SECURITY AND PRIVACY II

IFS-P2: ATTACKS AND DETECTION

IFS-P3: BIOMETRICS

IFS-P4: STEGANOGRAPHY, WATERMARKING AND SECRET SHARING SYSTEMS

IFS-P5: FORENSICS, SECURITY AND PRIVACY I

IDSP-P1: SIGNAL PROCESSING FOR EMERGING AND PRACTICAL APPLICATIONS

MLSP-L1: DEEP LEARNING APPLICATIONS I

MLSP-L2: DEEP LEARNING I

MLSP-L3: AUDIO, SPEECH, AND NATURAL LANGUAGE PROCESSING

MLSP-L4: LEARNING THEORY AND METHODS I

MLSP-L5: DEEP LEARNING APPLICATIONS II

MLSP-L6: MATRIX AND TENSOR METHODS I

MLSP-L7: GRAPH SIGNAL PROCESSING

MLSP-L8: COMPRESSIVE SENSING, DICTIONARY AND SUBSPACE LEARNING

MLSP-P1: DEEP LEARNING II

MLSP-P2: REINFORCEMENT AND TRANSFER LEARNING

MLSP-P3: LEARNING THEORY AND METHODS II

MLSP-P4: DEEP LEARNING APPLICATIONS III

MLSP-P5: DEEP LEARNING III

MLSP-P6: ADVERSARIAL LEARNING

MLSP-P7: MACHINE LEARNING APPLICATIONS I

MLSP-P8: PROBABILISTIC MODELS

MLSP-P9: MATRIX AND TENSOR METHODS II

MLSP-P10: LEARNING THEORY AND METHODS III

MLSP-P11: SEMI-SUPERVISED AND UNSUPERVISED LEARNING

MLSP-P12: DEEP LEARNING APPLICATIONS IV

MLSP-P13: DEEP LEARNING IV

MLSP-P14: DICTIONARY, SUBSPACE AND MANIFOLD LEARNING

MLSP-P15: AUDIO AND SPEECH APPLICATIONS

MLSP-P16: IMAGE AND VIDEO APPLICATIONS

MLSP-P17: DEEP LEARNING V

MLSP-P18: MACHINE LEARNING APPLICATIONS II

MMSP-L1: MULTIMODAL SIGNAL PROCESSING I

MMSP-P1: MULTIMODAL SIGNAL PROCESSING II

MMSP-P2: VISUAL COMMUNICATIONS AND QUALITY ASSESSMENT

MMSP-P3: MULTIMEDIA ANALYSIS

SAM-L1: DIRECTION OF ARRIVAL ESTIMATION

SAM-L2: MIMO SYSTEMS AND MIMO RADAR

SAM-L3: SPARSE ARRAYS AND SPARSE SENSING

SAM-P1: SPARSITY, SUPER-RESOLUTION AND IMAGING

SAM-P2: RADAR AND ACOUSTIC ARRAY PROCESSING

SAM-P3: BEAMFORMING AND SOURCE SEPARATION

SAM-P4: LOCALIZATION AND TRACKING

SAM-P5: DETECTION, ESTIMATION AND CLASSIFICATION

SPCOM-L1: MASSIVE MIMO

SPCOM-L2: LEARNING IN COMMUNICATION SYSTEMS

SPCOM-L3: PERFORMANCE ANALYSIS OF COMMUNICATION SYSTEMS

SPCOM-P1: NETWORKS AND DISTRIBUTED OPTIMIZATION

SPCOM-P2: ANTENNAS DESIGN AND CHANNEL ESTIMATION

SPCOM-P3: PRECODING AND TRANSCEIVER DESIGN

SPCOM-P4: OPTIMIZATION AND RESOURCE ALLOCATION FOR COMMUNICATION SYSTEMS

SPCOM-P5: MULTICARRIER AND INTERFERENCE NETWORKS

SPTM-L1: ADAPTIVE SIGNAL PROCESSING

SPTM-L2: SPARSITY-AWARE SIGNAL PROCESSING I

SPTM-L3: CONVEX OPTIMIZATION

SPTM-L4: SIGNAL PROCESSING OVER GRAPHS I

SPTM-L5: SOURCE SEPARATION AND ESTIMATION

SPTM-P1: SAMPLING, RECONSTRUCTION AND TIME-FREQUENCY ANALYSIS

SPTM-P2: BAYESIAN SIGNAL PROCESSING I

SPTM-P3: SAMPLING AND RECONSTRUCTION II

SPTM-P4: ESTIMATION THEORY AND METHODS I

SPTM-P5: BAYESIAN SIGNAL PROCESSING II

SPTM-P6: SIGNAL PROCESSING ON NETWORKS

SPTM-P7: PERFORMANCE ANALYSIS AND BOUNDS

SPTM-P8: DETECTION THEORY AND METHODS

SPTM-P9: SIGNAL PROCESSING OVER GRAPHS II

SPTM-P10: SIGNAL PROCESSING OVER GRAPHS III

SPTM-P11: ESTIMATION THEORY AND METHODS II

SPTM-P12: SPARSITY-AWARE SIGNAL PROCESSING II

SPTM-P13: OPTIMIZATION TOOLS

SLP-L1: END-TO-END SPEECH RECOGNITION I: GENERAL TOPICS

SLP-L2: END-TO-END SPEECH RECOGNITION II: NEW MODELS

SLP-L3: NOVEL ARCHITECTURES AND TRAINING STRATEGIES FOR ASR

SLP-L4: FEATURE LEARNING AND ADAPATION FOR ASR

SLP-L5: SPEECH ENHANCEMENT I

SLP-L6: SYSTEMS FOR SPEAKER RECOGNITION AND IDENTIFICATION

SLP-L7: DIARIZATION AND SPEAKER CHARACTERIZATION

SLP-L8: ANALYSIS OF VOICE, SPEECH AND LANGUAGE DISORDERS I

SLP-L9: USING MULTIPLE PERSPECTIVES IN EMOTION AND SENTIMENT ANALYSIS

SLP-L10: SPEECH SYNTHESIS I

SLP-L11: MODELS OF SPEECH PRODUCTION

SLP-P1: MULTI-LINGUAL IDENTIFICATION AND PROCESSING

SLP-P2: SPEAKER VERIFICATION AND IDENTIFICATION I

SLP-P3: MULTI-LINGUAL SPEECH RECOGNITION

SLP-P4: SPEAKER VERIFICATION AND IDENTIFICATION II

SLP-P5: END-TO-END SPEECH RECOGNITION III: SOURCE INTEGRATION AND KNOWLEDGE TRANSFER

SLP-P6: FEATURES AND ROBUSTNESS FOR SPEAKER IDENTIFICATION

SLP-P7: END-TO-END SPEECH RECOGNITION IV: TRAINING STRATEGIES

SLP-P8: FEATURES AND LEARNING FOR SPEAKER IDENTIFICATION AND DIARIZATION

SLP-P9: KEYWORD SPOTTING AND EMBEDDED ASR SYSTEMS

SLP-P10: ANALYSIS OF VOICE, SPEECH AND LANGUAGE DISORDERS II

SLP-P11: ASR TRAINING STRATEGIES AND TOOLKITS

SLP-P12: SPEECH ANALYSIS

SLP-P13: NEW FEATURES, MODELS AND REPRESENTATIONS / AUDIO VISUAL ASR

SLP-P14: SPEECH ANALYSIS OF EXTRALINGUISTIC FACTORS

SLP-P15: DISTANT SPEECH RECOGNITION

SLP-P16: ARCHITECTURES FOR EMOTION AND SENTIMENT ANALYSIS

SLP-P17: ROBUST SPEECH RECOGNITION

SLP-P18: VOICE CONVERSION

SLP-P19: SPEECH ENHANCEMENT II

SLP-P20: SPEECH SYNTHESIS II

SLP-P21: SPEECH SEPARATION, ENHANCEMENT AND DENOISING

SLP-P22: SPEECH SYNTHESIS III

SLP-P23: END-TO-END SPEECH RECOGNITION V: MODELING METHODS

SLP-P24: SPEECH CODING AND PERCEPTION

HLT-L1: APPLICATIONS: TRANSLATION, SUMMARIZATION, QA

HLT-L2: DIALOGUE

HLT-P1: LANGUAGE MODELING, ASR AND PUNCTUATION PREDICTION

HLT-P2: TOPIC MODELING AND DIALOG

HLT-P3: MACHINE LEARNING FOR UNDERSTANDING

HLT-P4: TRAINING REGIMES FOR EMOTION AND SENTIMENT ANALYSIS

BD-L1: BD LECTURE SESSION 1

BD-P1: BD POSTER SESSION 1

BD-P2: BD POSTER SESSION 2

IoT-P1: SP FOR IOT POSTER SESSION 1

IoT-P2: SP FOR IOT POSTER SESSION 2

SPED-L1: SIGNAL PROCESSING FOR EDUCATION

CI-L1: CIM LECTURE SESSION 1

CI-P1: CIM POSTER SESSION 1

SS-L1: HALF A CENTURY OF ADAPTIVE AND STATISTICAL SIGNAL PROCESSING EDUCATION

SS-L2: COMMUNICATIONS AND RADAR TRANSMISSION: COEXISTENCE AND BEYOND

SS-L3: RECENT ADVANCES IN SIGNAL PROCESSING FOR LARGE-SCALE COMPUTATIONAL IMAGING

SS-L4: SIGNAL PROCESSING FOR EMERGING WIRELESS HARDWARE ARCHITECTURES

SS-L5: TRADITIONAL AND EMERGING SIGNAL PROCESSING TEACHING PRACTICES

SS-L6: ACOUSTIC SCENE ANALYSIS AND TRACKING FOR TIME-VARYING REVERBERANT ENVIRONMENTS

SS-L7: NONLINEAR INVERSE PROBLEMS AND MATRIX FACTORIZATION

SS-L8: CHALLENGES AND PERSPECTIVES IN SPIKE-BASED SENSING AND PROCESSING

SS-L9: EMERGING QUANTUM SIGNAL PROCESSING PARADIGMS

SS-L10: PERCEPTUALLY MOTIVATED SIGNAL PROCESSING: DATA, ALGORITHMS AND EVALUATION

SS-L11: PARAHERMITIAN MATRIX FACTORISATIONS AND THEIR APPLICATIONS

SS-L12: AI FOR SOUND: A SESSION HONORING JAN LARSEN

SS-L13: STATISTICAL SIGNAL PROCESSING FOR SMART GRID APPLICATIONS

SS-L14: ARTIFICIAL INTELLIGENCE BASED HUMAN-MACHINE CONVERSATION TECHNOLOGY FOR INTERACTIVE EDUCATION

SS-L15: SIGNAL PROCESSING FOR BIG DATA

SS-L16: ROBUST DISTRIBUTED COMPUTING

SS-L17: ADVANCES IN STRUCTURED AND CONSTRAINED LOW-RANK APPROXIMATIONS

SS-L18: WILDLIFE BIOACOUSTICS AND ADAPTIVE SIGNAL PROCESSING

SS-L19: DEEP LEARNING FOR MULTIMEDIA FORENSICS

SS-L20: SIGNAL AND IMAGE PROCESSING FOR ENVIRONMENTAL MONITORING AND PROTECTION

SS-L21: ADVANCED SIGNAL PROCESSING FOR NON-INTRUSIVE LOAD MONITORING

SS-L22: NEURAL NETWORKS FOR SIGNAL PROCESSING APPLICATIONS

SS-L23: SIGNAL PROCESSING FOR SMART CITY APPLICATIONS AND THE INTERNET OF THINGS

SS-L24: MACHINE LEARNING FOR COMMUNICATIONS

SS-L25: ANOMALY DETECTION AND INTENT INFERENCE IN OBJECT TRACKING

SS-P1: RECENT ADVANCES IN THE ACTIVE CONTROL OF SOUND

SS-P2: LEARNING METHODS IN COMPLEX AND HYPERCOMPLEX DOMAINS

SS-P3: 3D VISION AND ITS APPLICATIONS

SS-P4: TENSOR-BASED MACHINE LEARNING FOR MULTI-DIMENSIONAL SIGNAL PROCESSING

SS-P5: MULTIMODAL REPRESENTATION LEARNING FOR LANGUAGE GENERATION AND UNDERSTANDING