TABLE OF CONTENTS

AUD-L1: MUSIC INFORMATION RETRIEVAL I

AUD-L2: DEEP LEARNING FOR SOURCE SEPARATION

AUD-L3: ACOUSTIC EVENT DETECTION

AUD-L4: AUDIO AND SPEECH SOURCE SEPARATION

AUD-L5: CLASSIFICATION OF ACOUSTIC SCENES AND EVENTS

AUD-L6: ACOUSTIC ENVIRONMENTS AND SPATIAL AUDIO II

AUD-L7: SIGNAL ENHANCEMENT AND RESTORATION I

AUD-L8: ACOUSTIC SENSOR ARRAY SIGNAL PROCESSING II

AUD-L9: MUSIC SIGNAL PROCESSING II

AUD-P1: DEEP LEARNING FOR AUDIO CLASSIFICATION

AUD-P2: DEEP LEARNING FOR SPEECH AND AUDIO

AUD-P3: ACOUSTIC ENVIRONMENTS AND SPATIAL AUDIO I

AUD-P4: FEEDBACK, NOISE, AND REVERBERATION

AUD-P5: MUSIC INFORMATION RETRIEVAL II

AUD-P6: ACOUSTIC SENSOR ARRAY SIGNAL PROCESSING I

AUD-P7: AUDIO CLASSIFICATION

AUD-P8: SOURCE SEPARATION AND ARRAY PROCESSING

AUD-P9: TOPICS IN AUDIO ANALYSIS AND CLASSIFICATION

AUD-P10: MUSIC SIGNAL PROCESSING I

AUD-P11: SIGNAL ENHANCEMENT AND RESTORATION II

AUD-P12: AUDIO, SPEECH AND MUSIC ANALYSIS

BIO-L1: BIOELECTRICAL SIGNAL PROCESSING

BIO-L2: BIOLOGICAL IMAGE ANALYSIS

BIO-L3: SIGNAL PROCESSING IN BIOMETRICS

BIO-L4: BIOMEDICAL SIGNAL PROCESSING

BIO-L5: MEDICAL IMAGE ANALYSIS

BIO-P1: BIOMEDICAL IMAGING AND ANALYSIS

BIO-P2: BIOMEDICAL SIGNAL ANALYSIS

BIO-P3: NEURO IMAGE AND SIGNAL PROCESSING

BIO-P4: PHYSIOLOGICAL SIGNAL PROCESSING

BIO-P5: BIO IMAGE AND SIGNAL PROCESSING

BIO-P6: BIOMEDICAL IMAGE SEGMENTATION

CI-L1: COMPUTATIONAL IMAGING

CI-L2: COMPUTATIONAL OPTICS

CI-P1: COMPUTATIONAL IMAGING METHOD AND APPLICATIONS

DIS-L1: ARRAY-BASED ARCHITECTURES FOR ENERGY-EFFICIENT SIGNAL PROCESSING SYSTEMS

DIS-P1: SIGNAL PROCESSING FOR EMERGING APPLICATIONS: MACHINE LEARNING

DIS-P2: ALGORITHM AND ARCHITECTURE CO-OPTIMIZATION

DIS-P3: DESIGN AND IMPLEMENTATION OF SIGNAL PROCESSING SYSTEMS FOR WIRELESS COMMUNICATION SYSTEMS

DIS-P4: DESIGN AND IMPLEMENTATION OF EMERGING SIGNAL PROCESSING SYSTEMS

IVMSP-L1: INVERSE PROBLEMS IN IMAGE/VIDEO PROCESSING I

IVMSP-L2: IMAGE/VIDEO ANALYSIS II

IVMSP-L3: IMAGE EMERGING TOPICS

IVMSP-L4: MACHINE LEARNING FOR IMAGE/VIDEO PROCESSING III

IVMSP-L5: IMAGE/VIDEO STORAGE, AND RETRIEVAL

IVMSP-L6: IMAGE/VIDEO SYNTHESIS, RENDERING AND VISUALIZATION

IVMSP-L7: POINT CLOUD AND DEPTH PROCESSING

IVMSP-L8: MULTI-SCALE AND WAVELET PROCESSING

IVMSP-L9: IMAGE/VIDEO CODING II

IVMSP-L10: IMAGE/VIDEO PROCESSING III

IVMSP-P1: IMAGE/VIDEO REPRESENTATION

IVMSP-P2: IMAGE/VIDEO CODING I

IVMSP-P3: MACHINE LEARNING FOR IMAGE/VIDEO PROCESSING I

IVMSP-P4: IMAGE/VIDEO ANALYSIS I

IVMSP-P5: IMAGE/VIDEO INTERPRETATION AND UNDERSTANDING

IVMSP-P6: MACHINE LEARNING FOR IMAGE/VIDEO PROCESSING II

IVMSP-P7: IMAGE/VIDEO PROCESSING I

IVMSP-P8: INVERSE PROBLEMS IN IMAGE/VIDEO PROCESSING II

IVMSP-P9: IMAGE/VIDEO ANALYSIS III

IVMSP-P10: INVERSE PROBLEMS IN IMAGE/VIDEO PROCESSING III

IVMSP-P11: IMAGE/VIDEO PROCESSING II

IVMSP-P12: PERCEPTION AND QUALITY MODELS

IFS-L1: MULTIMEDIA FORENSICS

IFS-L2: PRIVACY, BIOMETRICS AND INFORMATION SECURITY

IFS-P1: INFORMATION HIDING, BIOMETRICS AND SECURITY

IFS-P2: ANONYMIZATION, SECURITY AND PRIVACY

IFS-P3: MULTIMEDIA FORENSICS AND BIOMETRICS

IDSP-L1: SIGNAL PROCESSING FOR EMERGING INDUSTRY APPLICATIONS

IDSP-L2: INDUSTRY SESSION ON LARGE-SCALE DISTRIBUTED LEARNING STRATEGIES

IDSP-P1: EMERGING SIGNAL PROCESSING APPLICATIONS

MLSP-L1: ADVERSARIAL MACHINE LEARNING

MLSP-L2: OPTIMIZATION ALGORITHMS I

MLSP-L3: OPTIMIZATION ALGORITHMS II

MLSP-L4: GENERATIVE ADVERSARIAL NETWORKS

MLSP-L5: NEURAL NETWORKS APPLICATIONS I

MLSP-L6: SPARSITY AWARE PROCESSING AND LEARNING

MLSP-L7: MACHINE LEARNING APPLICATIONS III

MLSP-L8: TENSOR-BASED SIGNAL PROCESSING

MLSP-L9: AUTOENCODERS

MLSP-L10: DEEP NEURAL NETWORK STRUCTURES

MLSP-L11: ATTENTION NETWORKS

MLSP-L12: SEQUENTIAL LEARNING

MLSP-P1: DICTIONARY LEARNING, REPRESENTATION LEARNING AND MATRIX COMPLETION

MLSP-P2: APPLICATIONS IN SPEECH AND AUDIO

MLSP-P3: REINFORCEMENT AND SEQUENTIAL LEARNING

MLSP-P4: ADVERSARIAL ATTACKS AND FAST ALGORITHMS

MLSP-P5: APPLICATIONS IN VIDEO AND IMAGE PROCESSING I

MLSP-P6: PATTERN RECOGNITION AND MACHINE LEARNING

MLSP-P7: MACHINE LEARNING APPLICATIONS I

MLSP-P8: MACHINE LEARNING APPLICATIONS II

MLSP-P9: GRAPHICAL, KERNEL AND TENSOR METHODS

MLSP-P10: LEARNING METHODS

MLSP-P11: NEURAL NETWORKS AND PATTERN RECOGNITION

MLSP-P12: APPLICATIONS IN VIDEO AND IMAGE PROCESSING II

MLSP-P13: NEURAL NETWORKS APPLICATIONS II

MLSP-P14: TOPICS IN MACHINE LEARNING

MLSP-P15: NEURAL NETWORK ALGORITHMS

MLSP-P16: NEURAL NETWORKS APPLICATIONS III

MMSP-L1: SIGNAL PROCESSING FOR MULTIMEDIA APPLICATIONS II

MMSP-L2: DEEP LEARNING FOR MULTIMEDIA PROCESSING AND ANALYSIS II

MMSP-P1: SIGNAL PROCESSING FOR MULTIMEDIA APPLICATIONS I

MMSP-P2: DEEP LEARNING FOR MULTIMEDIA PROCESSING AND ANALYSIS I

MMSP-P3: MULTIMEDIA SIGNAL PROCESSING

SAM-L1: DIRECTION OF ARRIVAL ESTIMATION

SAM-L2: MIMO SYSTEMS AND MIMO RADAR

SAM-L3: SPARSE ARRAYS AND SPARSE SENSING

SAM-L4: LEARNING MODELS AND METHODS FOR MULTI-SENSOR SYSTEMS

SAM-P1: RADAR AND ACOUSTIC ARRAY PROCESSING

SAM-P2: BEAMFORMING, RELAYING AND SOURCE SEPARATION

SAM-P3: SPARSITY, SUPER-RESOLUTION AND IMAGING

SAM-P4: ROBUSTNESS, DECOMPOSITIONS, CALIBRATION AND BOUNDS

SAM-P5: LOCALISATION AND TRACKING

SAM-P6: DETECTION, ESTIMATION AND CLASSIFICATION

SPCOM-L1: NETWORKS AND RESOURCE ALLOCATION

SPCOM-L2: CHANNEL ESTIMATION

SPCOM-P1: MACHINE LEARNING FOR COMMUNCATIONS I

SPCOM-P2: MODULATION, DETECTION AND DECODING

SPCOM-P3: MIMO AND MULTI-ANTENNA SYSTEMS

SPCOM-P4: DESIGN AND IMPLEMENTATION OF COMMUNICATION SYSTEMS

SPCOM-P5: COMMUNICATION SIGNAL ANALYSIS AND OPTIMIZATION

SPTM-L1: ESTIMATION THEORY AND METHODS I

SPTM-L2: GRAPH REPRESENTATIONS AND ANALYSIS

SPTM-L3: ESTIMATION AND DETECTION

SPTM-L4: OPTIMIZATION TECHNIQUES I

SPTM-L5: SIGNAL PROCESSING EMERGING TOPICS

SPTM-L6: TRACKING AND ADAPTIVE SIGNAL PROCESSING

SPTM-L7: BAYESIAN SIGNAL PROCESSING II

SPTM-L8: SPARSITY-AWARE PROCESSING II

SPTM-P1: ADAPTATION AND LEARNING OVER GRAPHS

SPTM-P2: SAMPLING THEORY, ANALYSIS AND METHODS

SPTM-P3: SIGNAL AND INFORMATION PROCESSING OVER GRAPHS

SPTM-P4: SPARSITY-AWARE PROCESSING I

SPTM-P5: OPTIMIZATION TECHNIQUES II

SPTM-P6: SAMPLING, MULTIRATE SIGNAL PROCESSING AND DIGITAL SIGNAL PROCESSING

SPTM-P7: BAYESIAN SIGNAL PROCESSING I

SPTM-P8: SIGNAL PROCESSING OVER NETWORKS

SPTM-P9: ESTIMATION THEORY AND METHODS II

SPTM-P10: DETECTION AND CLASSIFICATION

SPE-L1: END-TO-END SPEECH RECOGNITION I: STREAMING

SPE-L2: LANGUAGE DISORDERS

SPE-L3: END-TO-END SPEECH RECOGNITION II: NEW MODELS

SPE-L4: MACHINE LEARNING FOR LANGUAGE PROCESSING I

SPE-L5: SPEECH SYNTHESIS AND VOICE CONVERSION I

SPE-L6: SPEECH ENHANCEMENT II: SINGLE CHANNEL

SPE-L7: SPEECH PERCEPTION AND PSYCHOACOUSTICS

SPE-L8: SPEECH SYNTHESIS AND VOICE CONVERSION II

SPE-L9: MULTIMODAL PROCESSING OF LANGUAGE

SPE-L10: SPEECH RECOGNITION: CONFIDENCE, ERRORS AND OOVS

SPE-L11: SPEECH SEPARATION AND EXTRACTION I: SINGLE CHANNEL

SPE-L12: SPEECH SEPARATION AND EXTRACTION II: MULTI-CHANNEL

SPE-L13: SPEECH RECOGNITION: REPRESENTATIONS AND EMBEDDINGS

SPE-L14: SPEAKER RECOGNITION/IDENTIFICATION/VERIFICATION

SPE-L15: EMOTION RECOGNITION

SPE-L16: SPEAKER DIARIZATION

SPE-L17: PARALINGUISTICS MODELING

SPE-P1: ADVERSARIAL/DISCRIMINATIVE TRAINING AND SPOOFING FOR SPEAKER RECOGNITION

SPE-P2: SPEECH ENHANCEMENT I: NETWORK ARCHITECTURES

SPE-P3: MACHINE LEARNING FOR SPEECH SYNTHESIS I

SPE-P4: SPEECH ANALYSIS AND CODING

SPE-P5: DEEP SPEAKER RECOGNITION MODELS

SPE-P6: SPEECH RECOGNITION: ACOUSTIC MODELLING I

SPE-P7: SPEECH ENHANCEMENT III: HEARING AIDS AND OTHER APPLICATIONS

SPE-P8: ROBUST SPEECH RECOGNITION

SPE-P9: END-TO-END SPEECH RECOGNITION III: GENERAL TOPICS

SPE-P10: SPEAKER DIARIZATION AND CHARACTERIZATION

SPE-P11: EMOTION

SPE-P12: MACHINE LEARNING FOR SPEECH SYNTHESIS II

SPE-P13: SPEECH SEPARATION AND EXTRACTION III

SPE-P14: SPEECH PRODUCTION

SPE-P15: SPEECH RECOGNITION: ADAPTATION

SPE-P16: WORD SPOTTING

SPE-P17: SPEECH ENHANCEMENT IV

SPE-P18: SPEAKER RECOGNITION SYSTEMS, DATA AND FEATURES

SPE-P19: MACHINE LEARNING FOR SPEECH SYNTHESIS III

SPE-P20: SPEECH RECOGNITION: ACOUSTIC MODELLING II

SPE-P21: VOICE CONVERSION

SPE-P22: LARGE VOCABULARY CONTINUOUS SPEECH RECOGNITION AND SEARCH

SPE-P23: SPEECH RECOGNITION: GENERAL TOPICS

HLT-L1: SPOKEN LANGUAGE TRANSLATION

HLT-L2: LANGUAGE MODELING

HLT-L3: SPOKEN LANGUAGE UNDERSTANDING AND DIALOGUE II

HLT-P1: SPOKEN LANGUAGE UNDERSTANDING AND DIALOGUE I

HLT-P2: SPEECH AND LANGUAGE ANALYSIS

HLT-P3: LANGUAGE UNDERSTANDING AND MODELING

HLT-P4: MACHINE LEARNING FOR LANGUAGE PROCESSING II

HLT-P5: MULTILINGUAL PROCESSING OF LANGUAGE

IOT-P1: INTERNET OF THINGS

COLL-L1: SESSION 3H: PROCESSING OF HIGHLY COMPLEX, HETEROGENEOUS, HIGH-DIMENSION DATA

COLL-L2: SESSION 3R: ROBUSTNESS REPRODUCIBILITY REPLICABILITY

SS-L1: ACTIVE CONTROL OF ACOUSTIC NOISE OVER SPATIAL REGIONS

SS-L2: SIGNAL PROCESSING METHODS FOR FINANCE APPLICATIONS

SS-L3: A SIGNAL-PROCESSING VIEW OF GRAPH NEURAL NETWORKS

SS-L4: END-TO-END APPROACHES FOR SPOKEN LANGUAGE UNDERSTANDING

SS-L5: SPIKE-BASED NEUROMORPHIC INFORMATION REPRESENTATION, PROCESSING AND LEARNING

SS-L6: MACHINE LEARNING FOR COMMUNICATIONS II

SS-L7: LEARNING AND OPTIMIZATION IN NON-CONVEX ENVIRONMENTS

SS-L8: RECENT ADVANCES IN AUTOMOTIVE RADAR SYSTEMS

SS-L9: LEARNING BASED INVERSION

SS-L10: SIGNAL PROCESSING FOR EMERGING WIRELESS HARDWARE ARCHITECTURES

SS-L11: NEURAL AND AUDIO SIGNAL PROCESSING FOR HEARING DEVICES

SS-L12: MACHINE LEARNING FOR PHYSICAL LAYER SECURITY AND PRIVACY

SS-L13: RANDOM MATRIX THEORY AND HIGH-DIMENSIONAL STATISTICAL SIGNAL PROCESSING

SS-L14: SIGNAL PROCESSING AND MACHINE LEARNING FOR SATELLITE AND SPACE COMMUNICATIONS

SS-L15: SIGNAL PROCESSING AND CODING FOR MACROMOLECULAR STORAGE AND COMPUTING

SS-L16: DISTRIBUTED MACHINE LEARNING ON WIRELESS NETWORKS

SS-L17: MODEL BASED DEEP LEARNING

SS-L18: ANOMALY DETECTION AND INTENT INFERENCE IN OBJECT TRACKING

SS-L19: HARDWARE-EFFICIENT LARGE-SCALE ANTENNA ARRAYS: THE STAGE FOR SYMBOL-LEVEL PRECODING

SS-L20: SUSTAINABLE NETWORKING AND COMPUTING THROUGH MACHINE LEARNING

SS-L21: ADVANCES IN SIGNAL PROCESSING FOR ENVIRONMENTAL STUDIES

SS-L22: SIGNAL PROCESSING FOR IOT

SS-L23: DEEP GRAPH LEARNING

SS-L24: AMP AND OTHER APPROXIMATE BAYESIAN INFERENCE TECHNIQUES

SS-L25: ADVANCES IN LOW-RESOLUTION SAMPLING AND SIGNAL PROCESSING

SS-L26: SIGNAL PROCESSING FOR BEYOND 5G COMMUNICATIONS

SS-L27: SIGNAL PROCESSING FOR SENSING, INFORMATION FUSION, AND SITUATIONAL AWARENESS IN AUTONOMOUS SYSTEMS

SS-P1: SIGNAL PROCESSING EDUCATION: TRENDS AND INNOVATIONS

SS-P2: UNCONVENTIONAL SENSING