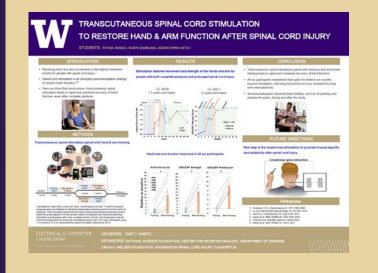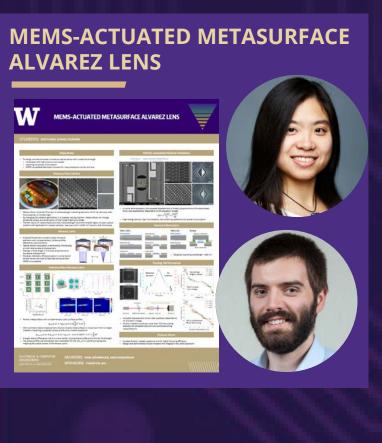# RESEARCH SHOWCASE 2021

TRANSCUTANEOUS SPINAL CORD STIMULATION TO RESTORE HAND AND ARM FUNCTION AFTER SPINAL CORD INJURY

MEMS-ACTUATED METASURFACE ALVAREZ LENS
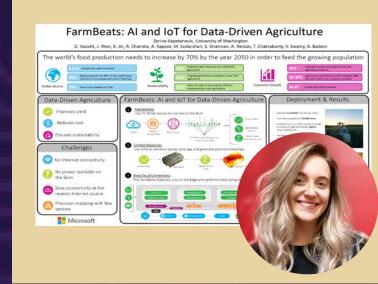
FARMBEATS: AI AND IoT FOR DATA-DRIVEN AGRICULTURE

SYSTEM IDENTIFICATION VIA NUCLEAR NORM REGULARIZATION

AREA AND POWER REDUCTION TECHNIQUES FOR MM-WAVE PHASED-ARRAY TRANSCEIVER FRONT-ENDS

SAFETY-CRITICAL CONTROL OF POWER SYSTEMS

EARSTETH: CARDIAC ACOUSTIC SENSING USING CONSUMER HEARABLES

A MACHINE LEARNING APPROACH FOR ACCURATE AND REAL-TIME DNA SEQUENCE IDENTIFICATION

PEROVSKITE LIGHT EMITTING DEVICES

FAIR ORDERING IN DECENTRALIZED FINANCE

MERGING EPIDEMIC COMPARTMENT MODELS AND FILTERING TECHNIQUES TO IMPROVE FORECASTS

DESIGN OF 'SMART' GRASPER ROBOT FOR TISSUE CHARACTERIZATION

A DATA ASSIMILATION FRAMEWORK FOR 2D IONOSPHERIC ESTIMATION

MODELING CHARGE TRANSPORT THROUGH NUCLEIC ACID STRUCTURES

NANOPHOTONIC INTEGRATION OF DEFECT QUBITS IN DIAMOND

IMPACTS OF TIME-OF-USE RATE CHANGES ON THE ELECTRICITY BILLS OF COMMERCIAL CONSUMERS

MODULAR POWER ELECTRONICS FOR GRID INTEGRATION OF PHOTOVOLTAICS AT HIGHER VOLTAGES

SPINAL STIMULATION WITH LOCOMOTOR TRAINING FOR PHYSICAL FUNCTION AFTER SPINAL CORD INJURY

A CONVEX NEURAL NETWORK SOLVER FOR DCOPF WITH GENERALIZATION GUARANTEES

LARGE-SCALE MULTI-MODAL DURA FOR NON-HUMAN PRIMATES

BROADBAND SELF-INTERFERENCE CANCELLATION WITH ENHANCED LINEARITY FOR USE IN FULL-DUPLEX TRANSCEIVERS

LOCAL CONVERGENCE ANALYSIS OF GRADIENT DESCENT ASCENT WITH FINITE TIMESCALE SEPARATION

ACeD: SCALABLE DATA AVAILABILITY ORACLE

NON-VOLATILE INTEGRATED PHOTONICS ENABLED BY BROADBAND TRANSPARENT PHASE CHANGE MATERIAL

A CONTROLLABLE MODEL OF GROUNDED RESPONSE GENERATION

HARDWARE ACCELERATION APPLICATIONS FOR THE LARGE HADRON COLLIDER

METASURFACE OPTICS FOR ULTRA-COMPACT AUGMENTED REALITY VISORS

TURBO AUTOENCODER: DEEP LEARNING BASED CHANNEL CODE

BLOCKHAIN AND AI ALGORITHMS FOR DISASTER RESPONSE

A 25 MBPS, 12.4 PJ/BIT DQPSK BACKSCATTER WIRELESS UPLINK FOR THE NEURODISC BCI

A SINGLE RECIPE FOR ONLINE SUBMODULAR MAXIMIZATION WITH ADVERSARIAL OR STOCHASTIC CONSTRAINTS

SCALABLE QUANTUM NANOPHOTONIC PLATFORMS IN NOISE LAB

ENABLING 'VIRTUAL REALISTIC FIELD TRIALS' FOR CELLULAR NETWORKS BY INTEGRATING 'QUADRIGA + Ns-3'

AuraRing: PRECISE ELECTROMAGNETIC FINGER TRACKING FOR SMART RINGS

A GRADIENT-BASED MODEL FOR HUMAN-MACHINE INTERACTION

UNCERTAINTY-AWARE SURGICAL INSTRUMENT SEGMENTATION