Yuanrui Chen

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EDUCATION

Ph.D. program in Electrical and Computer Engineering, GPA: 3.85/4.00, Aug 2022 - Ongoing, Purdue University

Working on Metazoom project as well as fabrication of metasurface. Helped with Metalens HDR project.

B.S. in Electrical Engineering(minor in mathematics), GPA: 3.89/4.00, Aug 2018 - May 2022, University of Illinois at Urbana-Champaign

CORE COURSES

Math: Applied Complex Variables, Abstract Linear Algebra, Intro to Combinatorics, Stochastic Process
Computer Science/Computer Engineering: Computer Systems&Programming, Intro to Computer Science, Data Structures, Programming parallel machines
Electrical Engineering: Signal Processing, Semiconductor Electronics, Electronic Circuits and Lab, Digital Systems Laboratory, Embedded DSP Laboratory, IC Device Theory & Fabrication, Introduction to Robotics, Control Systems, Probability-based Image Processing
Machine Learning: Random Variables and Signals, Computational Methods in Optimization, Machine Learning
Optics: Fields and Waves, Nanophotonics and Metamaterials, Optical Design

TEACHING EXPERIENCE

Grader, University of Illinois at Urbana-Champaign, 2021 Fall

- ***ECE 310, Digital Signal Processing***

HONORS/SCHOLARSHIPS

James Scholar - UIUC
Scholarship for Continuing Students, Grainger College of Engineering, 2021 Spring, 2021 Fall
Yunni and Maxine Pao Memorial Scholarship
Dr.Milton Feng Scholarship in ECE
Omron Electrical Engineering Scholarship

Ross Fellowship for Purdue Graduate School
ICCP 2023 Travel Award

LANGUAGES

Chinese/Mandarin (native)
English(TOEFL: 108/120)

STUDENT ORGANIZATIONS

PES Scholastic Committee(02/2021–5/2022)
Student Advocacy Coalition(02/2020-05/2022)
Illini Solar Car(09/2020-12/2020)

COURSE PROJECTS

CS 225 project(2021): A graph-based implementation of advanced flight search under pandemic

An Android application that can detect basic shapes in images based on Hough transform and edge detection(2021)

Android game, *Tetris* with additional features developed on FPGA(2021)

Senior design: *EpiCap*, a wearable seizure detection device prototype(2022)

Interior Point Solver for optimization implemented in Julia(2023)

UNDERGRAD RESEARCH EXPERIENCE

Discovery Partners Institute, Chicago, IL

Artificial Intelligence in Construction(01/2021 - 05/2021)

Advisor: Prof. Mani Galparvar-Fard, Dr. Juan Diego Nunez

Developed Blender API Automation to Create Synthetic Images; applied Convoluted Neural Network(based on AlexNet) to build a Manufacturing Materials Identification System

Music Transcription(01/2022 - 05/2022)
Advisor: Prof. Lav Varshney, Dr. Haizi Yu
Proposed a quantitative metric for music transcription quality that matches with human rating 91.7%; Evaluated the performance of a transcription model with a research team.

King Abdullah University of Science and Technology, Thuwal, Saudi Arabia
VSRP Research Scholar(06/2022 - 08/2022)
Advisor: Prof. Shinkyu Park

Implemented active multi-target search algorithm using distributed Thompson sampling that has superior search efficiency. Tested and debugged the firmware of Dingo robots based on ROS.

TECHNICAL SKILLS

Programming languages: Java, C, C++, Python, SystemVerilog, Julia

Softwares/packages: LTspice, Matlab, Quartus and ModelSim, Gazebo, Android Studio, Git, Linux, Latex, PyTorch

CLEAN ROOM TRAINING

Chemical processes: Piranha cleaning, development and lift-off of ARP6200

Electron Beam Lithography: JEOL JBX-8100FS

Spin Coating: SCS G3P-8 Spinner

SEM: Thermo Scientific Apreo SEM

Wafer Dicing: Accretech SS20 Dicing Saw

Etching: Branson Asher(Barrel Asher), Panasonic E620 ICP RIE Etcher

Deposition: Lesker E-Beam Evaporator, Axis PECVD

Characterization: P-7 Profilometer, Filmetrics F40-UV, Ellipsometer