Hirad Tabatabaei

RESEARCH INTERESTS Signal Processing, Machine Learning, Robotics, Computer Vision, Computer Networks, Circuits and Electronics

EDUCATION

University of Massachusetts Amherst Expected graduation: May 2021

Department of Electrical and Computer Engineering

- BS in Electrical Engineering
- Member of UMass Amherst Dean's List
- Recipient of UMass Amherst Chancellor's Award
- Member of UMass Amherst chapter of Eta Kappa Nu (HKN)

Georges Vanier Secondary School Graduated June 2017

Toronto, Ontario, Canada

- Graduated from a math and science intensive program with the highest honors
- Graduated among the top 10 percent of all graduates in the Toronto District School Board

PUBLICATIONS

Haleh Khojasteh, Hirad Tabatabaei A survey and Taxonomy of Blockchain-based Payment Channel Networks. 2020

This paper offers a summary of the different types of Payment Channel Networks (PCN), which are based on the Blockchain model. It describes the operating method of the PCNs and compares the advantages and disadvantages of the different designs of PCN with one another.

EXPERIENCE

Course Tutor

UMass Amherst Department of Electrical and Computer Engineering

- Tutoring students in the course Circuits and Electronics I at the department of Electrical and Computer Engineering
- My responsibilities include holding exam review sessions and helping the students with their homework

Research Intern

Bridgewater State University *Syracuse, NY*

- Implemented the behavior of Proof of Stake and Proof of Work consensus algorithms for Blockchain using Python
- The algorithms were tasked with selecting a new block signer each round
- This experience led to the production of a research paper

Course Advisor

UMass Amherst College of Engineering *Amherst,MA*

- Advised new College of Engineering students in their course selection during the summer

COURSEWORK Circuits and Electronics I and II, Digital Systems, Java Programming, Computational Tools for ECE, Analytical Tools for ECE, Signals and Systems, Probability and Statistics, Embedded Systems, Modern Physics and Materials, Fields and Waves, Semiconductor Devices and Material, Signal Processing Methods, Intermediate Electronics, Digital Signal Processing, Data Structures, Hardware Organization, Machine Learning for Engineers, Algorithms for ECE

SKILLS

Java, C++, Python, MATLAB, C, Microsoft Office, Circuit Analysis and Design, PSpice, Atmel Studio, Mathematics, Electronics, Signal Processing, LaTeX, ARMv8 Assembly, Altium

PROJECTS

MovieBase

A script made in Python that used a text file containing a list of movies which allowed the user to search, add and remove items from the list

FleetManager

A program in Java Involving extensive use of arraylists to simulate a fleet of cars which were used to make deliveries, based on their characteristics. The user had the ability to add, remove and maintain the cars in the fleet in the program

DiceProbCalculator

A script in MATLAB that showed the probability of the different possible sums for several dice. The probability was based on the user's input for the number of dice and the number of sides on each die

Captcha-Mask

A project that involved implementing a closed-captioning system on a mask. As part of this project, I designed a circuit, performed experiments using Arduino Uno and designed a PCB on Altium.

LegoArm

Built a movable arm made of Lego by breadboarding a circuit and programming a microcontroller. Programmed the Atmel 328p microcontroller on the circuit using C programming on Atmel Studio

7-Segment LED Clock

Built a fully functional LED clock by breadboarding a circuit and programming a microcontroller. Used the Attiny817 microcontroller, shift registers, C programming on Atmel Studio and a LED seven-segment display

AWARDS AND HONORS

UMASS Amherst Eta Kappa Nu (HKN) Member February 2020 - Present
Society of Collegiate Leadership and Achievement Member November 2019 - Present
Honor Society Member August 2019 - Present
National Society of Leadership and Success Member December 2018 - Present
National Society of Collegiate Scholars Member April 2018 - Present
Recipient of the UMass Amherst Chancellor's Award September 2017 - Present
Member of UMass Amherst Dean's List (4 semesters) 2017 - Present
Ontario Scholar 2017
Toronto School Board Certificate of excellence in Math, Science and Computer Science 2017
University of Waterloo Fermat Math Competition Award of Distinction 2016
University of Waterloo Pascal Math competition Award of Distinction 2015
University of British Columbia Michael Smith Science Challenge Award of Distinction 2015
Member of High School Honor Roll 2014-2017