Erin M. Kim

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Education

Georgia Institute of Technology | Atlanta, GA *August 2018 – Present*
Bachelor of Science in Computer Engineering, GPA 3.8 Expected Graduation, December 2022
Minor in International Business, Language, and Culture

Korea Advanced Institute of Science and Technology (KAIST) | Daejeon, South Korea *August – December 2019*
Transfer with 12 Credit Hours

Yonsei University | Seoul, South Korea *August – December 2021*
Transfer with 12 Credit Hours

Skills

Programming: Java, Python, C, C++, JavaScript, Node.js, VHDL, Assembly Language, SQL, NoSQL, HTML, HLSL, C#, MATLAB
Platforms: Windows, Linux (Ubuntu), Amazon Web Services (AWS)
Hardware: ARM mbed microcontroller, FPGAs, oscilloscope, logic analyzer
Software: Android Studio, Altera Quartus II, NI LabVIEW, GitHub, Cadence, Unity, Visual Studio Code
Professional Organizations: Georgia Tech Women in Electrical and Computer Engineering (WECE), Freshman Servant Leadership Organization (FSLO), Eta Kappa Nu (HKN)
Communication: Design proposals, technical reports, instruction manuals, presentations (large and small audiences)
Languages: English (fluent), Korean (advanced)

Research Experience

Automated Synthesis of Analog Standard Cells using Mixed Signal Processing *August 2020 – May 2021*
Opportunity Research Scholars' Program (ORS) | Atlanta, GA
Integrated Computational Electronics Lab | Funded by Sandia National Laboratories
SRC JUMP URI Research Scholar | SRC Research Scholar Program
Use the configurability and floating gate aspects of the Field Programmable Analog Array (FPAA) board to achieve automated synthesis in analog standard cells in the mixed signal domain.

- Analyzed Floating Gate switches and Computational Analog Blocks cells customized for a 350nm Integrated Circuit (IC) Process through Cadence.
- Designed schematic and layouts for digital standard cells for inverter and NAND gate using Cadence.
- Started creating analog standard cells for Floating Gate switches and Operational Transconductance amplifiers using Cadence.

Work Experience

Georgia Tech ECE Department | Atlanta, GA *August 2020 – Present*
ECE 2031 (Digital Design Lab) Teaching Assistant

- Check students' lab work and provide help regarding the design and implementation of digital systems like FPGAs in the labs.
- Subject material including: combinational logic, state machines, VHDL, assembly language, designing and implementing circuits, and CAD tools.

Projects

Catch Game *Summer 2020*
Digital Design Laboratory (ECE2031)
The goal of this team-based project was to create an application on an FPGA development board that made use of the AXDL345 accelerometer.

- Game where the LEDs above the switches turn on in a continuous pattern and the user attempts to flip the switch to high when the LED is lit right above the switch. The switch to flip is determined by a randomized number indicated in the hex screen. The score is incremented on the hex when the user successfully catches the LED.
- Contributed to the assembly code that increments the score for every success and randomizes the switch number
- Organized the timeline of what needs to be done to finish the project within 2 weeks.

Missile Command *Summer 2020*

Programming for Hardware/Software Systems (ECE2035)

The goal of this individual project was to recreate the Atari Missile Command game using the ARM mbed microcontroller, an LED screen, pushbuttons, and an accelerometer. Required knowledge of C and object-oriented programming.

- Created a struct for a doubly linked list and implemented code that created missiles and laser beams, used a list to keep track of structures, and erased the buildings and sprite when hit by the missiles and the missiles when hit by the laser beams.

Photo Gallery Application *Spring 2021*

Cloud Computing (ECE4150)

The goal of this individual project was to create a Photo Gallery application composed of albums and photos using 2 variants: SQL and NoSQL to store records of the photos using AWS.

- SQL variant: The records of albums and photos are maintained in a MySQL database instance on Amazon RDS.
- NoSQL variant: The records of photos are held in an AWS DynamoDB table managed through NoSQL code.
- Used python to create the application, which uses the Flask web framework and is deployed on an Amazon EC2 instance.
- Used HTML to code the web interface of the photo gallery.
- Used python to implement a method for user management and authentication as well as updating, deleting, and adding photos and albums to the application.

Food Insecurity Project – Atlanta Community Food Bank (ACFB) *Spring 2021*

Human-Computer Interaction (CS3750)

The goal of this group project was to use the User-Centered Design Process to create a prototype solution that solves the problem space regarding Food Insecurity.

- Created a high-fidelity prototype of a website using Figma to help solve the problem that ACFB users may not readily have access to transportation to obtain food from food pantries.
- Developed a solution to have a food delivery system on the ACFB website.
- Designed the volunteer pages of the website prototype where volunteers can sign up to deliver food to users.
- Performed an evaluation of the prototype by testing participants to determine if the artifact is useful and usable.

Custom Post-Processing Shader - Unity *Summer 2021*

GPU Programming for Video Games (ECE4795)

The goal of this project was to create a postprocessing shader that has a spatial aspect and uses depth and normal texture information to create an effect.

- Created a shader with a ripple-like effect on the scene controlled by parameters such as wave speed, wave amount, and intensity
- Added outlines to all objects in the scene by using the depth and normal texture information as well as the soble operator to calculate the soble difference to find the outline.
- Controlled the outline through parameters of thickness and color.
- Used HLSL to implement the ripple and outline effects in the shader and used C# code to render the shader code and obtain information on parameters inputted by the user.

Leadership/Activities

Eta Kappa Nu (HKN) | Atlanta, GA

Recording Secretary *Spring 2021*

Historian *Spring 2022*

- Electrical and Computer Engineering Honor Society
- Recorded meeting minutes at Officer meetings and created resume book for corporate sponsors.
- Take pictures of events and use the pictures to create a yearbook