

# KAARTHIK A. ALAGAPPAN

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## EDUCATION

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### University of Central Florida

*Bachelor of Computer Science,*  
GPA: 3.96

Orlando, FL  
December 2020

### Seminole State College

*Associate of Arts (through dual enrollment),*  
GPA: 4.0

Sanford, FL  
August 2017

## TECHNICAL SKILLS

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**Languages:** C, Java, Python, SQL, Bash, JavaScript, HTML, CSS, PHP

**Tools and Environments:** Linux, Git, MySQL, Agile

**Certifications:** Microsoft Office Specialist (2014), Microsoft Technology Associate (2014)  
Adobe Photoshop (2015), Illustrator (2015), Premiere Pro (2015), Dreamweaver (2015)

## WORK EXPERIENCE

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### University of Central Florida

May 2019 – Present

#### Undergraduate Research Assistant

- Modified the LLVM and Clang infrastructures and a source code transformer to support a customized, side-channel free architecture, and created Bash scripts to test the tools and simplify the process for the end users
  - Added a new LLVM-IR (C++) branch opcode that produces extra assembly code used by the side-channel free architecture, and modified Clang (C++) to emit that opcode based on the source code attributes
  - Customized a Java-based source code transformer to convert specific statements into a compatible format that does not induce new side-channels

## PROJECTS AND EXTRACURRICULARS

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### Endless Learner (ELLE) – Virtual Reality

January – December 2020

#### Senior Design Project

- Working with a researcher to create virtual reality games that aid students in learning new languages while collecting data from the games to analyze the impact of different types of games on the students' growth
- Serving as the project manager for a team of 5 and as a backend developer
  - Collaborated with two other ELLE groups to determine the requirements and redesign the existing system to better suit the researcher's needs and to have a unified backend, and coordinated the new backend implementation
  - Currently implementing RESTful APIs in Python using Flask and maintaining MySQL databases

### Engineering Leadership & Innovation Institute at UCF

November 2018 – Present

#### Member in the student committee

- Working with the tech team to create projects that are to be used as tools to teach children about programming
- Two games, tic-tac-toe and minesweeper, have been completed using Python, and two projects, an IoT project to control a regular 3D printer through the internet and a Python starter guide, are in progress

### Knight In & Contact Manager

August – December 2019

#### Course Projects

- Served as the project manager and as a backend developer for both projects
- Built a contact manager website based on the LAMP stack with HTML5, CSS, JavaScript, and REST APIs
- Collaborated with a professor to create a Bluetooth based attendance app called Knight In
  - Familiarized myself with Firebase and JavaScript to host the database and create API functions, respectively

### LEAD Scholars (UCF)

August 2017 – May 2019

- A two-year leadership program that helped me cultivate effective leadership practices

## VOLUNTEER SERVICES

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### Hindu Society of Central Florida

- Creating an automated phone and text messaging system in Python using Twilio services
- Recreated and improved their website in addition to uniting different services under a new management system