

# KAARTHIK A. ALAGAPPAN

Sanford, FL 32771 // (386)-628-1649 // [kaarthik.alagappan@gmail.com](mailto:kaarthik.alagappan@gmail.com) // [kaarthikalagappan.dev](http://kaarthikalagappan.dev)

## EDUCATION

### University of Central Florida

*Bachelor of Computer Science,*  
GPA: 3.96

Orlando, FL  
December 2020

*Master of Computer Science,*

May 2022

## TECHNICAL SKILLS

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

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

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

## WORK EXPERIENCE

### University of Central Florida

May 2019 – Present

#### Research Assistant

- Modified LLVM, Clang, and a source code transformer to support a customized, side-channel free architecture
  - Added a new LLVM IR branch opcode (C++) to produce extra assembly code used by the side-channel free architecture, and modified Clang (C++) to emit that opcode based on source code attributes
  - Customized XTC, a source code transformer (Java), to transform specific statements to avoid new side-channels
  - Created Bash scripts to test the tools and simplify the process for the end users
- Collaborating with multiple researchers to make P4, a network packet processing language, modular
  - Collecting and organizing relevant data from P4 programs and assisting with refining the scope of the project
  - Analyzing and documenting preprocessor usage patterns in existing P4 projects

## PROJECTS AND EXTRACURRICULARS

### Endless Learner (ELLE) – Virtual Reality

January – December 2020

#### Capstone Project

- Collaborated with a researcher to create VR games that aid students in learning new languages while collecting data to analyze the impact of different games on the students' growth
- Served as the project manager for a team of five and as a backend developer
  - Collaborated with two other ELLE groups to determine the requirements and unify the existing system
  - Coordinated the redesign and implementation of the backend amongst the ELLE groups
  - Implemented, documented, and maintained Flask (Python) RESTful APIs and MySQL databases

### Engineering Leadership & Innovation Institute at UCF

November 2018 – December 2020

#### Student committee member

- Worked with the tech team to create projects that were used as tools to teach children about programming
  - Created a Python starter guide and two games, tic-tac-toe and minesweeper, using Python
- Served as a mentor and a judge for the Google Sprint project that aimed to solve common student issues on campus

### Process for Object Oriented Software Design

August – December 2019

- Served as the project manager and as a backend developer for two projects
- Built a contact manager website based on the LAMP stack with HTML5, CSS, JavaScript, and REST APIs
- Collaborated with the professor to create a Bluetooth based attendance app called Knight In
  - Learned 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 cultivate effective leadership practices

## VOLUNTEER SERVICES

### Hindu Society of Central Florida

May 2020 – Present

- Creating an automated phone and text messaging system in Python using Twilio services
- Working with the IT committee to improve their website and unite different services under a new management system