

# SAM JIJINA

266 Ferst Dr NW, KACB 2337, Atlanta, GA-30332 | [sam.jijina@gatech.edu](mailto:sam.jijina@gatech.edu) | U.S. Permanent Resident

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## EDUCATION

**Georgia Institute of Technology, Atlanta, GA** **May 2022 – present**  
Doctor of Philosophy in Computer Science (Research Area: Computer Architecture)

**Georgia Institute of Technology, Atlanta, GA** **August 2016 – May 2022**  
Master of Science in Computer Science with specialization in Systems (GPA 4.0)  
Bachelor of Science in Computer Science with High Honor

## SKILLS

**Programming Languages:** Java, C, Python, HTML, CSS, x86 Assembly, SystemVerilog.

**Hardware:** Altera and Xilinx FPGA Boards, Sensor Programming and Polling, Telemetry Communication, Hardware In-Loop Simulations, Autonomous UAVs.

**Other Toolchains:** Intel Quartus Prime, Microsoft AirSim, Xilinx Vivado, Vitis HLS, and Chipyard

**Subject Knowledge:** Processor Design, Computer Organization and Architecture, Networks, Operating Systems Design, Knowledge-Based Artificial Intelligence, Natural Language Processing, GPU Architecture, Data Structures and Algorithms.

## AWARDS

**2<sup>nd</sup> Student Design Competition on Networked Computing on the Edge (CPS-IoT Week 2022)** **May 2022**  
Received the **2<sup>nd</sup> place** award for our project “*Mobility Patterns to Optimize Communication for Distributed Capture Processing Onboard Autonomous UAVs*”

**Outstanding Graduate Teaching Assistant Award** **April 2022**  
Received the Outstanding Graduate Teaching Assistant Award in the College of Computing.

**President’s Undergraduate Research Travel Award** **February 2020**  
Received the PURA Travel Award to present a research prototype at the CogArch Workshop in the HPCA 2020 Symposium

## RESEARCH EXPERIENCE

**High Performance Architecture Research Lab (HPArch@Georgia Tech)** **August 2019 – present**  
Researching under Dr. Hyesoon Kim  
Current projects include investigating novel architectures and communication mediums for autonomous systems, developing FPGA platform framework to accelerate domain specific tasks.

**Graduate Research Assistantship (GRA)** **August 2020 – present**  
Working under Dr. Hyesoon Kim at the Georgia Institute of Technology on various research projects.

**CRNCH Rogues Gallery** **May 2021 – August 2021**  
Worked under Dr. Jeff Young at Rogues Gallery, part of Georgia Tech’s CRNCH, on building RISC-V BOOM for Xilinx FPGAs.

## ACADEMIA

**Mentor for Undergraduate Students** **May 2020 – present**  
Mentoring undergraduate students carrying out research in the field of computer architecture.

**Graduate Teaching Assistantship (GTA)** **January 2021 – December 2021**  
Graduate TA for an undergraduate-level Processor Design class.

## **PUBLICATIONS**

R. Hadidi, B. Asgari, **S. Jijina**, A. Amyette, N. Shoghi, and H. Kim. "**Quantifying the Design-Space Tradeoffs in Autonomous Drones**," International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), Detroit, MI, USA, 2021.

**S. Jijina**, A. Amyette, N. Shoghi, R. Hadidi and H. Kim "**Understanding the Software and Hardware Stacks of a General-Purpose Cognitive Drone**," 2020 IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS), Boston, MA, USA, 2020.

**S. Jijina**, A. Amyette, R. Hadidi and H. Kim "**Towards a General-Purpose Cognitive Drone**," The Fourth Workshop on Cognitive Architectures (CogArch 2020), co-located with HPCA 2020, San Diego, CA, USA, 2020

## **INDUSTRY EXPERIENCE**

### **Oracle Corporation**

**May 2017 – August 2017**

Interned in the Oracle Banking Platform-Development Group in the field of data storage security and data transfer security. Developed and deployed a network security and efficiency analysis tool for Oracle's intranet to all Asia-Pacific data centers.

### **CBRE South Asia Private Limited - CISCO joint project**

**May 2015 – August 2015**

Interned in CBRE's joint-development project with CISCO for creating sustainable, intelligent buildings.

Worked on IoT devices with intelligent communications mainframe to sync IoT devices to the central management system.

## **CERTIFICATIONS**

### **FAA-Certified Remote Pilot (sUAS Rating)**

Certified by U.S. FAA to be a Remote Pilot in Command for UAS under Part 107 regulations.

## **PROJECTS**

### **Accelerating UAV Architecture**

**August 2019 – present**

NSF supported Open-source drone FPGA platform to be used for experiments and analysis of ASIC designs.

### **Distributed UAV Compute + Capture Protocol Design**

**May 2021 – present**

Developing an ad-hoc protocol to be used for distributed camera capture and compute workloads for drones.

### **MacSim (a Heterogenous Timing Simulator)**

**May 2020 – December 2020**

Developed docker image for MacSim and upgraded core functionality in accordance with Intel Pin.

### **FPGA Robot Arm Control**

**October 2019 – December 2019**

Developed Verilog code for the Altera DE0 FPGA which utilized closed feedback-loops to control multiple DC servos in the MeArm robot arm.

### **Virtual Agent using NLP and KBAI**

**August 2019 – December 2019**

Developed a python agent which can input questions asked from users and use NLP to decode the question.

### **E1000 x86 Network Driver for xv6**

**January 2019 – May 2019**

Developed a network driver for the e1000 NIC for the xv6 operating system.

## **ACTIVITIES AND ORGS**

- IEEE Student Member (Membership Number 96494509)
- IEEE Computer Society Member and TCCA Member
- Amateur Astronomy
- Recreational Sports: soccer, golf, and table tennis