

# Abid Arcot

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## EDUCATION

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| <b>Master of Science in Computer Science</b><br>Arizona State University, Tempe, AZ.<br>Related coursework: Distributed Database Systems, Software Requirements and Specification, Mobile Computing, Advanced Operating Systems. Real-Time Embedded Systems, Reconfigurable computing, Hardware Security and Trust, Computer Architecture II, Combinatorial Algorithms and Intractability. | <b>Expected to graduate 05/2024</b><br>3.78 GPA |
| <b>Bachelor of Technology in Electronics and Communication Engineering</b><br>Vellore Institute of Technology, Vellore, India  | <b>06/2021</b><br>3.30 GPA                      |

## SKILLS

**Programming Languages:** Java, C/C++, JavaScript, Python,

**Frontend:** HTML, CSS, React.JS

**Backend:** Node.JS, Express.JS, MongoDB, PostgreSQL, PostGIS, Git, TCP/UDP, Docker, Kubernetes, AWS, Linux/Unix

## WORK EXPERIENCE

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| <b>Software Firmware Engineer I, Hewlett Packard, Bangalore, India</b>   | <b>07/2021 - 08/2022</b> |
| <ul style="list-style-type: none"><li>Led and managed the ownership, development, testing, and maintenance of the IO modules. Collaborated with cross-functional teams to deliver 3 major feature releases within tight deadlines.</li><li>Designed and executed an XML data model for socket communication with hardware and integrated a REST API for efficient printer-client configuration. Reduced XML parsing time by 30% through optimization techniques.</li><li>Conducted unit testing of C++ modules by writing GoogleTests, ensuring high-quality deliverables. Identified and fixed critical bugs, which led to a 20% increase in printer-client configuration efficiency.</li></ul> |                          |
| <b>VLSI DFT Intern, Capgemini Engineering, Bangalore, India</b>  | <b>04/2021 - 06/2021</b> |
| <ul style="list-style-type: none"><li>Collaborated on executing test plans, and simulations, and participated in MBIST, JTAG, and ATPG methodologies.</li></ul>  |                          |

## PROJECTS

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| <b>Autonomous Terrain Navigation with Pololu 3pi+ 2040: A Hill Climbing Challenge</b>  | ( <a href="#">source code</a> / <a href="#">blog</a> ) Fall 2023 |
| <ul style="list-style-type: none"><li>Executed an autonomous robotic project focused on hill climbing, leveraging the capabilities of the Pololu 3pi+ 2040 robot with Raspberry Pi RP2040 microcontroller. Orchestrated tasks including design, implementation, and analysis, integrating essential features such as obstacle detection, line sensing, feedback control, accelerometer, and gyroscope. Engineered a robust finite state machine using the Lingua Franca language to autonomously guide the robot through various scenarios, ensuring efficient ascent, summit detection, directional adjustments, and safe descent.</li></ul>  |  |
| <b>Fully Homomorphic Encryption: A Comparative Analysis of SEAL and OpenFHE Libraries</b>  | ( <a href="#">source code</a> / <a href="#">blog</a> ) Fall 2023 |
| <ul style="list-style-type: none"><li>Conducted a comparative analysis of Fully Homomorphic Encryption (FHE) libraries, Microsoft SEAL and OpenFHE. Explored FHE's ability to perform computations on encrypted data without decryption and analyzed efficiency and performance of homomorphic operations, highlighting OpenFHE's superiority. This project offers valuable insights into practical implementations of Fully Homomorphic Encryption, aiding in understanding and advancing secure computation technologies.</li></ul>  |  |
| <b>Physical unclonable functions</b>   | ( <a href="#">source code</a> / <a href="#">blog</a> ) Fall 2023 |
| <ul style="list-style-type: none"><li>Implemented and documented a project focusing on enhancing hardware security through the design and implementation of Physical Unclonable Functions (PUFs). The project explored Arbiter PUF and Ring Oscillator PUF, delving into their design principles, testing methodologies, and achieved results. The implementation covered Verilog, ModelSim, FPGA synthesis using Quartus Prime, and FPGA integration for the Ring Oscillator PUF. Showcased impressive single-chip Hamming distances of 49.10% for Arbiter PUF and 41.30% for Ring Oscillator PUF, emphasizing their effectiveness in generating unique and secure device identities.</li></ul> |  |
| <b>Enhancing Edge Device Image Classification: Seamless Integration in Mobile Computing</b>  | ( <a href="#">source code</a> / <a href="#">blog</a> ) Fall 2022 |
| <ul style="list-style-type: none"><li>Implemented server-side image classification integration for edge devices, focusing on mobiles and laptops, as part of a collaborative effort with a team of two. Utilized an Android application for image segmentation and convolutional neural networks (CNNs) trained on the MNIST dataset. Achieved real-time classification of handwritten digits with 80.34% accuracy. Demonstrated the transformative potential of server integration in mobile computing.</li></ul>   |  |
| <b>Distributed Database Systems Projects:</b>  | <b>Fall 2022</b>   |
| <ul style="list-style-type: none"><li>Executed horizontal and vertical fragmentation in PostgreSQL for database optimization. Conducted queries involving Parallel Spatial Join with PostGIS, implementing the same using MapReduce on Apache Sedona. Contributed to MongoDB project identifying businesses by city and nearby user-location-based businesses.</li></ul>   |  |

[\(more projects\)](#)