

# Muthu Kumaran Manoharan

email: [m.manoharan@ufl.edu](mailto:m.manoharan@ufl.edu) | phone: (352) 871-4353 | linkedin: [linkedin.com/in/muthmano-dev/](https://www.linkedin.com/in/muthmano-dev/)  
github: [github.com/muthmano-dev/](https://github.com/muthmano-dev/) | website: [muthmano-dev.github.io](https://muthmano-dev.github.io)

## EDUCATION

<b>The University of Florida</b> , Gainesville, FL	<b>(Expected) May 2021</b>
<i>Master of Science in Computer Science</i>	<b>GPA:</b> 3.5/4.0
<b>Anna University</b> , Chennai, India	<b>Apr. 2015</b>
<i>Bachelor in Electronics &amp; Communication Engineering</i>	<b>CGPA:</b> 7.58/10.0

## TECHNICAL SKILLS

- **Programming Languages:** C, Python, Java, C++, R, Bash, Elixir, Javascript.
- **Operating System:** Linux, Windows, Unix, Android.
- **Database:** MySQL, PostgreSQL, MongoDB, Cassandra, Redis, HBase.
- **Cloud platforms:** GCP, Azure.
- **Frameworks, tools, and technologies:** Flask, Kubernetes, Istio, Grafana, Docker, Apache Spark, Kafka, Git, Clearcase, Jenkins, JIRA, Nginx, Nmap, Wireshark, GDB, Keras, OpenCV, Nodejs, Agile development.

## WORK EXPERIENCE

<b>Bitwise Academy Pvt. Ltd., India</b>	<b>May 2017 – Jun. 2019</b>
---	-----------------------------

### *R&D Staff Engineer*

- Designed and developed applications to determine student learning patterns, knowledge maps, learning curves, and conceptual understanding of the courses.
- Created innovative software solutions that in tandem with the LMS delivered adaptive e-Learning content with a reward system that improved the users' learning rate by 10%, retention of concepts taught by 18%, and the engagement rate by almost 25%.
- Led the migration from a monolithic architecture to a microservice architecture, which reduced the downtime of systems during critical updates by 70%, increased the scalability by 150% and brought down the server costs by almost 15%.
- Automated ETL processing and reduced the manual workload by 40%.
- Developed a real-time data pipeline prototype using Kafka and Spark that processed several hundred GBs of semi-structured data from 10+ sources and stored them in HBase.
- Scripted system maintenance tasks that improved system stability and uptime by 10%.
- Led the ML backend team with two full-time employees and mentored graduate interns.

<b>EmbedUR systems Pvt. Ltd., India</b>
---

**May 2015 – Apr. 2017**

### *Software Engineer*

- Implemented standalone EAP authentication modules that increased the connection stability of hybrid remote edge access points in an enterprise WLAN network by 9%.
- As part of the 802.11 Linux device driver development team for Cisco Access Points, worked on increasing the stability of autonomous mesh mode from 91% to 96% by determining rare edge cases and tweaking the internal state machines to accommodate them.
- Performed Root Cause Analysis (RCA) and resolved 110 issues related to HREAP/autonomous AP modes and reduced the module failure rate from 12% to less than 5%.

## ACADEMIC PROJECTS

<b>BitTorrent based P2P file sharing software in Java</b>	<b>Dec. 2020</b>
---	------------------

Created a distributed P2P file sharing system using choking algorithm implemented in BitTorrent.

<b>Twitter Clone using Phoenix and Elixir/Erlang</b>	<b>Dec. 2019</b>
--	------------------

Created a Twitter clone simulating the subscribers based on the Zipf distribution.

<b>Implementation of Gossip protocol in a distributed system using Elixir/Erlang</b>	<b>Sep. 2019</b>
--	------------------

Developed a gossip protocol performing aggregate calculation (Push-sum) based on [this](#) research paper and analyzed the convergence efficiency in various network topologies.