

# RAKIBUL HASSAN

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## EDUCATION

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### Saginaw Valley State University

B.Sc. in Computer Science, CGPA – 3.35/4.00

University Center, MI, United States

Anticipated Graduation – December 2023

### Topics of Interest

Software Engineering, Machine Learning & AI, Data Engineering, Data Analysis & Visualization, Web and Mobile Development

### Awards

First Year Writing Award (1st Place), Dean's List, Red & White Academic Scholarship, Mridha Leadership Scholarship

## SKILLS

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**Languages:** Java, Python, JavaScript, C/C++ , HTML/CSS, PHP, R, LaTeX

**Database Management System:** SQLite, MySQL, Microsoft-SQL, MongoDB

**Frameworks:** TensorFlow, Matplotlib, Pandas, NumPy, React, Three.JS

**Developer Tools:** Git, GCC/GDB, Vim, Shell Scripting, Docker, Anaconda, Android Studio, Blender

**Operating Systems:** Linux, Windows, MacOS

**Boards:** TI Jacinto 7, BeagleBone, Raspberry Pi, Arduino Uno/Mega

## WORK EXPERIENCE

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### Research Engineer Intern/Co-Op - Machine Learning

Jun 2022 – Present

Magna International - Corporate R&D

Troy, MI

- Led a proof-of-technology project implementing **Python** and **Docker** for deploying open-source applications in image-based vital signs detection. Developed a ground truth mechanism using **JAVA** and an Android smartwatch for heartbeat validation, ensuring efficient application performance.
- Conducted evaluations and testing on annotation and segmentation tools like **CVAT** and **SAM** for image and LiDAR point cloud data, optimizing workflow speed while ensuring accurate data quality.
- Conducted in-depth data analysis on DNN models using Python's **Scikit-Learn** and **TensorFlow** for accuracy verification and performance optimization, supplemented with **Matplotlib** and **Seaborn** for comprehensive visualizations.

### Student Research Assistant – Android Sensor Data Analysis

Mar 2023 – Present

Saginaw Valley State University (Mentored under Dr. Khandaker Abir Rahman)

Saginaw, MI

- Conducted comprehensive analysis on Android sensor data using Python libraries, such as **Matplotlib** and **Numpy**, and enhanced accuracy by implementing sensor fusion techniques like **Kalman Filtering**, resulting in improvement in similarity accuracy.
- Applied sophisticated algorithms such as **Dynamic Time Warping (DTW)** and **Manhattan Distance** to refine and optimize data processing, leading to significantly more accurate research conclusions.

### Computer Science Tutor

Oct 2020 – May 2023

Saginaw Valley State University - Center for Academic Achievement

Saginaw, MI

- Enhanced students' academic performance by **20%** and facilitated a deeper understanding of complex concepts, by employing strong communication skills to provide guidance, while also partnering with tutors and faculty to innovate teaching methodologies.

## Desktop Support Analyst

Mar 2021 – Jun 2022

Covenant HealthCare - Information Technology

Saginaw, MI

- Provided tier-II support to 500+ users with a **95% satisfaction rate**, ensured seamless operations, and demonstrated technical expertise by executing system admin tasks and network maintenance, effectively preventing downtime.

## Web Developer Student Intern

Oct 2019 – Dec 2021

Saginaw Valley State University - University Communications

Saginaw, MI

- Redesigned multiple websites using **HTML**, **CSS**, **JavaScript**, and content management system (terminalfour), enhancing user experience with modern, brand-aligned websites gaining positive user feedback
- Led academic program website projects, collaborating with academic departments to ensure that the websites accurately reflected their unique offerings and branding.

## PROJECTS & COMPETITIONS

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### CS Capstone Project - Foster Grandparents Management System | C#, .NET, MSTest

Jan 2023 – Apr 2023

- As a Quality Assurance Specialist, improved the application's bug-free rate to **95%** by conducting rigorous testing using **C#** and **.NET**, enhancing system stability and user experience.
- Coordinated with cross-functional teams in an **Agile environment** and utilized **Github** for version control and continuous integration, improving team collaboration and deployment efficiency.

### Crowd-sourcing Android Application | Java, Node, MongoDB

November 2022

- Successfully led the team in integrating geolocation and mapping functionality into the app using **JAVA** and **Google Maps API** and employed **MongoDB** database for efficient storage and retrieval of user data, thereby ensuring accurate location tracking and smooth app functionality.

### NASA Robotic Mining Competition – Lunabotics 2022 | Python, ROS, TensorFlow

Oct 2021 – May 2022

- Led Python-based software development enabling seamless communication between robots and external devices like sensors/cameras using **serial** communication.
- Assisted in image data labeling and utilized **SSD MobileNet** with Python and **TensorFlow** for custom dataset training, resulting in an efficient, application-specific deep learning model.

### Interactive Websites | React.JS, MaterialUI, ChakraUI, Framer Motion, Blender, Tree.JS

February 2022

- Developed dynamic, user-friendly websites using **React frameworks** for personal, club projects, and small businesses incorporating a variety of animations and effects to enhance user interaction and experience.
- Created a **3D** model using **Blender** and integrated it into website using **Three.js** for website interaction

### BitTorrent-like P2P Application | Java, TCP/IP, Multi-threading

Oct 2021 – Dec 2021

- Developed a BitTorrent-like P2P application in **Java**, integrating **Socket programming**, **Multi-threading**, and **TCP/IP** for efficient multi-connection file transfers
- Designed and tested the application using unit and integration testing, ensuring maximum reliability and performance.

## ACTIVITIES & INVOLVEMENTS

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### Google Developers Student Club | Workshop Lead @SVSU

July 2022 – May 2023

- Led the development and implementation of strategic marketing plans for club promotion across campus, fostering community engagement and skill-building through the successful organization and execution of diverse events such as coding workshops and tech talks.

### Machine Learning Club | Core Board Member / Treasurer @SVSU

Apr 2022 – May 2023

- Managed club finances per university guidelines, and successfully executed Machine Learning competitions.