# Mohamed Hassan

## Software Engineer

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## SKILLS

- JavaScript (ES6+), TypeScript, HTML5, Tailwind CSS, Bootsrap
- Node.js, React.js, Next.js, Express.js
- MySQL, PostgreSQL, Firebase
- Python, Kotlin, C, MATLAB, PHP
- Git, GitHub, Docker, CI/CD Pipelines
- AWS(S3), Cloudflare R2, Vercel
- Tensorflow, TFLite, Keras, Pandas, NumPy, Data Preprocessing, Model Training & Evaluation
- DialogfLow, Natural Language Processing
- Agile and Scrum Methodologies

## EDUCATION

Bachelor of Computer Science, 2025
University of Nairobi (UoN),
Nairobi, Kenya

## CERTIFICATIONS

- Data Structures and Algorithms certification by Udemy
- Machine Learning Specialization by Coursera
- Web Hacking/Penetration Testing certification by Udemy

## SUMMARY

Innovative and forward-looking Software Engineer with a strong background in full stack development, AI Engineering and cloud-based solutions. Experienced in architecting, designing and deploying scalable web and mobile applications with modern frameworks like Next.js, React.js, Node.js, and Jetpack Compose. Skilled in machine learning workflows, including data preprocessing, model training, and deployment using TensorFlow. Passionate about DevOps practices with tools like Docker, Git, and CI/CD pipelines.

## WORK EXPERIENCE

### Full Stack Developer | SkillUp Technlogy ( Remote) Jigjiga, Ethiopia

*October 2024 - Present*

- Led a team of 4 Engineers for the development of modern, high performance and mobile responsive web applications using React.js, Node.js and Next.js.
- Optimized application performance, reducing load times by 25% using code-splitting, lazy-loading and caching mechanism like pre-rendering (static site generation).
- Deployed full-stack applications with AWS S3, Vercel, Docker, and Cloudflare.
- Implemented authentication using NextAuth, OAuth and JWT.
- Mentored fellow developers and conducted code reviews to maintain high quality and standard coding practices.
- Integrated apps with AI chatbots through RAG (Retrieval-Augmented Generation).

### Software Engineer Intern | Grafame Tech Nairoibi, Kenya

*July 2024 - September 2024*

- Built and deployed a full-stack property marketplace web app, gaining hands-on experience in frontend development, backend APIs, and database integration.
- Delivered on-site IT support to clients, including installing software (e.g., AnyDesk), resolving internet/Wi-Fi issues using command-line tools, and configuring devices.
- Installed and configured UniCenta oPOS and Dolibarr ERP systems, deepening understanding of retail operations and open-source business management tools.
- Participated in project management tasks, using tools like Trello or similar platforms to monitor milestones, assign tasks, and ensure timely delivery.

## PROJECTS

### AI Powered Crop Disease Detection App

*Tech Stack: Python, TensorFlow, Kotlin, Jetpack Compose, Firebase, Cloudflare R2*

- Developed an AI-driven mobile solution to diagnose crop diseases from smartphone-captured images using TensorFlow and MobileNetV2.
- Preprocessed datasets, trained custom CNNs, and deployed lightweight models suitable for on-device inference.

**Research Papers**
- Hassan, M. A. (2023). Project Report for Rental Application System. Rental Application Doc on Academia.edu (906 views, 97 bookmarks – Academia.edu) (https://uonbi.academia.edu/MHassan)

**Thesis / Capstone Project**
- Hassan, M. A. (2025). KilimoVision: A Mobile-based AI System for Tomato Disease Detection and Treatment Recommendations. Capstone Project, University of Nairobi (54 views– Top 5% on Academia.edu) (https://uonbi.academia.edu/MHassan)

**Author, Shacab Blog on Hashnode**

- Published 13 articles (979+ total views) on AI, technology, and science; built a subscriber base and contributed to knowledge-sharing within the tech and research community. (https://hashnode.com/@MohamedShaab)

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# AWARDS

DAFI Scholarship, 2021

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- Converted the model to TFLite format and reduced the size by 70%.
- Integrated Firebase for database storage and Cloudflare R2 for image storage and analysis workflows.
- Implemented an agro-marketplace feature to recommend treatments and connect users to local agro-chemical dealers.

### Construction Site Management System

*Tech Stack: Next.js, TypeScript, PostgreSQL, Tailwind CSS, Prisma, Vercel*

- Developed a full-stack web application to streamline construction project tracking, workforce management, and material inventory.
- Designed intuitive dashboards and role-based access for site managers, workers, and contractors.
- Integrated PostgreSQL with Prisma ORM for scalable data modeling and efficient queries.
- Deployed the app on Vercel with continuous integration, enabling real-time updates and reliable performance across devices.

### Distributed Database System

*Tech Stack: MySQL, PostgreSQL, Python, SQL, Shell Scripting, Docker*

- Designed and implemented a distributed database system across heterogeneous environments using vertical and horizontal fragmentation techniques.
- Utilized Docker to simulate multiple database nodes and environments, enabling cross-platform testing and modular deployment.
- Automated fragmentation, distribution, and reconstruction of data using Python scripts and SQL queries.
- Ensured seamless data access and integrity across systems, improving fault tolerance and performance in distributed query handling.

# EVENTS AND WORKSHOPS

### CGIAR Science Week 2025
*United Nations Office at Nairobi, Kenya | April 7–12, 2025*

Attended the inaugural CGIAR Science Week, a global gathering of over 10,600 participants, including scientists, policymakers, and development partners. Engaged in plenary sessions, strategy dialogues, and innovation showcases focused on transforming food, land, and water systems through science and partnerships.

### Afretec UoN Student Makerthon 2024
*University of Nairobi, Kenya | October 27 – November 1, 2024*

Participated in a week-long innovation challenge organized by Afretec and hosted by the University of Nairobi's C4DLab. Collaborated with peers from six African universities to develop tech-driven solutions addressing real-world challenges in agriculture, healthcare, and climate change. Engaged in design thinking workshops, empathy discovery, prototyping, and final pitch presentations, enhancing skills in cross-cultural collaboration, problem-solving, and entrepreneurship.

# VOLUNTEERING AND COMMUNITY PROJECTS

### Hiildhaxal Digital Museum App
*Volunteer Developer | 2024 – Present*

Built and deployed a web-based digital museum platform for preserving and showcasing art and cultural content, using Next.js and Vercel Postgres for scalability and robustnes, alongside Cloudflare R2 for secure media storage and delivery.