



Empowering communities through technology and education

# AI and Data Science Bootcamp



# Introduction



Emerge Livelihoods is set within a broader vision to champion a thriving ecosystem that amplifies the self-reliance of individuals and communities across Malawi and beyond. As part of its mission to equip people with equitable opportunities, Emerge Livelihoods is constantly seeking innovative pathways to build capacity and foster community-based impact.

Through the Emerge Learn flagship initiative, Emerge Livelihoods coordinates capacity development interventions for individuals and communities, leveraging leadership development, education and training, and streamlining technology to advance digital inclusion, employability, digital innovations, and entrepreneurship.

In this context, Artificial Intelligence (AI) and Data Science have emerged as transformative tools across sectors, offering tremendous potential to solve social, economic and environmental challenges. Introducing underserved and emerging communities including children, youth, women, refugees, and people with disabilities to these fields can catalyse new career pathways, spark innovation and build local solutions.

<https://emergelivelihoods.org/emerge-learn/>



## Project Outcome

Emerge Livelihoods enrolled 20 participants (10 females and 10 males) into AI and Data Science program which commenced with two-day bootcamps. On the first day, participants were introduced to the AI and Data Science ecosystem, highlighting the evolution of AI, its core fundamentals, and its connection to the data science value chain. Participants were also introduced to target program design and impact measurement frameworks. The first day concluded with a hands-on coding session, where participants learned Python programming using Sublime Text, an integrated development environment with built-in Python support and a rich library of extensions for enhanced functionality.



On the second day, participants applied their learning through a practical exercise in program design. Using a Tuberculosis case study, they identified key societal challenges, designed a data collection process, conducted data analysis using simple linear regression, and interpreted the results to inform effective program design.

The two-day bootcamp concluded with a certificate presentation ceremony, led by Ms. Wangiwe Kambuzi, who encouraged them to leverage their newly acquired skills to develop innovative, data-driven solutions that address social challenges in their respective communities.



## Visiting Innoret

Following the two-day Training of Trainers (ToT) program, Emerge Livelihoods engaged the 20 trained young people, together with Wiza Msuku, to conduct a community outreach session aimed at sharing their newly acquired knowledge. The outreach took place on 8th August 2025 at the Innovation Research & Training Centre (INNORET) in Area 4, Mzuzu, and reached an additional 20 young people (8 females and 12 males) from the community.



The session, led by Mr. Msuku, introduced participants to the evolution of Artificial Intelligence (AI), its core principles, and the fundamentals of Data Science, with focus on its role in addressing community challenges. Wiza also highlighted career opportunities within the AI and Data Science fields, by also providing practical examples of innovative solutions that can be developed to shape meaningful career paths.

# Bootcamp Participants



The AI and Data Science program engaged 20 young people (10 females and 10 males) from diverse communities across both urban and rural areas of Mzuzu City, including Chiputula, Mchengautuwa, and Masasa.

Following the release of the call, Emerge Livelihoods received an overwhelming response, with a total of 343 applications submitted. Of these, 33.5% (115) were female applicants, while 66.5% (228) were male applicants, demonstrating the high demand among young people to gain AI and Data Science skills.

**The bootcamp specifically targeted individuals with basic digital skills who demonstrated a strong interest in acquiring AI and Data Science knowledge for their career development or to contribute to data-driven community solutions that advance social development.**



Shadreck Mawindo

A digital skills trainer and social entrepreneur working with Emerge Livelihoods while building youth-focused initiatives. He specializes in digital literacy, community empowerment, and rural transformation across pan-African contexts. His expertise spans curriculum design, ICT integration, data analysis, and storytelling for development. He joined the AI & Data Science Bootcamp to strengthen his machine learning skills and design scalable, data-driven programs. His mission is to bridge digital divides and turn local challenges into engines of opportunity.

### Insights gained during the AI & Data Science bootcamp



I gained hands-on experience in Python, machine learning, and data analytics, which strengthened my ability to design evidence-based solutions. The training reshaped how I view innovation, showing me that AI can bridge grassroots challenges to scalable impact. It renewed my purpose and clarified my ambition to build tech-enabled, youth-led initiatives across Africa.

<https://www.linkedin.com/in/shadreck-mawindo/>



Harold Mkandawire

Harold Mkandawire is a final-year Environmental Science student at LUANAR with a focus on water quality monitoring and sustainable resource management. He brings skills in environmental research, laboratory analysis, and data-driven assessment. Through leadership roles, he has strengthened his advocacy for sustainable development. His motivation for the AI & Data Science Bootcamp was to enhance his ability to apply tech-enabled solutions to environmental challenges. He aims to use data and AI to improve environmental decision-making in Malawi and beyond.

### Insights gained during the AI & Data Science bootcamp



During the bootcamp, I developed practical skills in Python, data cleaning, visualization, and introductory machine learning. I also learned how AI can support environmental work—from climate analysis to water monitoring. This experience broadened my perspective on integrating technology into sustainability research. It inspired me to pursue a path where environmental science meets data-driven innovation.

<https://www.linkedin.com/in/harold-mkandawire/>





Sibongile Malama

Sibongile Malama is a fourth-year Data Science student at Mzuzu University, skilled in Python programming, research, and data analysis. She is a digital advocate passionate about advancing AI and Machine Learning. Her goal is to build solutions that solve real-world problems using intelligent systems. She joined the Bootcamp to deepen her technical expertise and gain exposure to global ML innovations. Sibongile aspires to become a leading problem-solver in the AI space.

### Insights gained during the AI & Data Science bootcamp



The bootcamp opened my eyes to how AI is transforming data science, especially through automation of repetitive tasks. I strengthened my Python skills and gained a deeper understanding of AI-assisted decision-making. This experience shifted my mindset toward the strategic and creative side of the field. It motivated me to align my career with emerging technologies and contribute to real-world innovation.



<https://www.linkedin.com/in/sibongile-malama-034269312/>



Ellen Kalulu

Ellen Kalulu is an ICT student at Mzuzu University and an aspiring data scientist with strong skills in multiple programming languages and machine learning workflows. She has experience in software development, data preprocessing, and data visualization. Driven by curiosity and innovation, she joined the AI & Data Science Bootcamp to expand her technical capabilities. Ellen aims to apply data-driven technologies to impactful real-world solutions. Her career ambition blends software engineering with intelligent systems.

### Insights gained during the AI & Data Science bootcamp



Working in teams to build models gave me confidence and clarity about future AI projects. I gained practical experience in Python, preprocessing, modeling, and ethical AI. The sessions strengthened my communication and problem-solving abilities. This journey inspired me to pursue a career rooted in data-driven impact.



<https://www.linkedin.com/in/ellen-kalulu-01779b378/>



Tumpale Winga

Tumpale Winga is a University of Malawi student pursuing Gender Studies with creative strengths as an author, poet, artist, and graphic designer. He also serves as Managing Director at Youth Enlightenment. His motivation for joining the Bootcamp was to broaden his scientific and technological knowledge. He is eager to leverage AI and Data Science to solve emerging societal challenges. Tumpale's work blends creativity, social impact, and digital innovation.

### Insights gained during the AI & Data Science bootcamp

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I learned the basics of programming and coding, which reshaped how I think about technology. The bootcamp expanded my aspirations and gave me a clearer pathway forward. It showed me how technical skills can unlock new opportunities for growth and innovation.

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<https://www.linkedin.com/in/tumpale-winga-7a028a38a/>



Nollah Mwenda

Nollah Mwenda is a Bachelor of Social Sciences student specializing in Human Rights advocacy and social justice. She brings strong communication and public-speaking skills developed through academic and community engagement. Her interest in AI and Data Science stems from a desire to solve complex social problems with modern tools. She joined the Bootcamp to gain new skills that strengthen her problem-solving capacity. Nollah aims to apply tech-informed approaches to human rights and community development.

### Insights gained during the AI & Data Science bootcamp

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Through the bootcamp, I gained skills in Python for data analysis using Pandas, NumPy, and Scikit-learn. Collaborating with peers boosted my confidence and helped me share knowledge with others. This experience strengthened my interest in teaching, learning, and applying data science in real projects. It reaffirmed the value of community learning in tech.

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<https://www.linkedin.com/in/nollah-mwenda-a43ba4374/>



Elizabeth Munthali

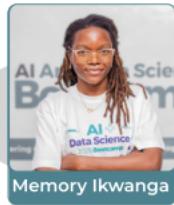
Elizabeth Munthali is a Sales Representative at United Civil Servants Sacco with strengths in communication, marketing, and teamwork. She joined the AI & Data Science Bootcamp to discover how technology can enhance digital communication and innovation in her field. The experience expanded her confidence and opened new pathways for problem-solving. Elizabeth now seeks to apply data-driven approaches in marketing and community-focused solutions. She is motivated to integrate tech into her career growth.

### Insights gained during the AI & Data Science bootcamp

The training introduced me to essential programming skills, package installation, and the fundamentals of AI and machine learning. It gave me a strong foundation in understanding how intelligent systems work. These insights expanded my curiosity and encouraged me to explore technology more intentionally.



<https://www.linkedin.com/in/elizabeth-munthali-09421b205/>



Memory Ikwanga

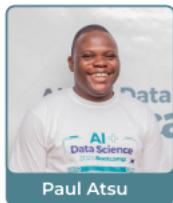
Memory Ikwanga is a Chemical Engineer, entrepreneur, and tutor passionate about technology-driven innovation. She has industrial experience in process engineering, QA, lab analysis, and system optimization. After observing inefficiencies in manual manufacturing processes, she set out to explore predictive and data-driven solutions. She joined the AI & Data Science Bootcamp to apply emerging technologies to industrial improvement. Memory aims to drive smarter, more efficient production through AI-powered monitoring.

### Insights gained during the AI & Data Science bootcamp

I gained foundational knowledge in data science, AI, and machine learning, learning how data informs decision-making. The sessions introduced me to key tools for visualization and interpretation. This exposure showed me the potential of data-driven thinking in solving real problems. It motivated me to apply these approaches to improve processes and efficiency in my career.



<https://www.linkedin.com/in/memory-ikwanga-9168621b7/>



Paul Atsu

Paul Atsu is a Development Communications practitioner volunteering with WUSC and Emerge Livelihoods. His expertise includes inclusive facilitation, cross-sector collaboration, and impact storytelling for nonprofit development. He is committed to data-informed messaging and evidence-based advocacy. Paul joined the AI & Data Science Bootcamp to strengthen his digital literacy and AI capabilities. His goal is to design innovative, tech-enabled solutions that empower communities and elevate youth development outcomes.

### Insights gained during the AI & Data Science bootcamp

I developed skills in machine learning, visualization, and ethical AI, which strengthened how I approach community-centered solutions. I learned to turn complex data into meaningful insights for equity and social impact. The experience shifted my view of data from numbers to powerful narratives. It inspired me to merge AI with strategic communication and youth development.



<https://www.linkedin.com/in/paul-atsu-6024a1165/>



Twambilile Mwalwanda

Twambilile Mwalwanda is the Team Leader for Technical Operations at Emerge Livelihoods with a background in ICT and Cybersecurity. She is committed to staying ahead of emerging technologies that improve organisational security and efficiency. Her interest in AI includes automation, data management, and visualization for smarter operations. Participation in the Bootcamp strengthened her understanding of AI's role in cybersecurity. She aims to integrate intelligent systems into secure, modern organisational workflows.

### Insights gained during the AI & Data Science bootcamp

During the bootcamp, I learned data collection, cleaning, visualization, and practical machine learning techniques. I gained hands-on experience in Python and analytical tools for solving real problems. The training taught me to approach challenges with responsibility and a data-driven mindset. It strengthened my ambition to enter cybersecurity and use AI for organizational resilience.



<https://www.linkedin.com/in/twambilile-mwalwanda-2072bb1b2/>



Alexander Gombar

Alexander Gombar is a Communications and Marketing Officer at Emerge Livelihoods with a strong foundation in digital content creation and strategic storytelling. His portfolio includes branding, rebranding, social media strategy, annual reports, and event communications. Known for his creativity and entrepreneurial mindset, he aims to merge media, business, and innovation. He joined the AI & Data Science Bootcamp to explore how AI can transform media for development. Alexander seeks to expand his skills in decision-making, finance, and studio production while building platforms that inspire communities.

#### Insights gained during the AI & Data Science bootcamp



I was introduced to the fundamentals of AI, data science, and data structures, along with basic IDE tools. Learning Python expanded my understanding of how programs function and how data is processed. This foundation sparked my interest in exploring more advanced technical concepts. It gave me a clear starting point for deeper learning in tech.



<https://www.linkedin.com/in/alexander-gombar/>



Tahirih Malima

Tahirih Malima is an Information Systems student at the University of Malawi with growing expertise in data science, cloud computing, AI, and software development. He is passionate about using technology to address real-world challenges. His academic journey has equipped him with strong analytical and programming skills. He joined the AI & Data Science Bootcamp to deepen his technical knowledge and practical application of intelligent systems. Tahirih is driven to build solutions that blend innovation with societal impact.

#### Insights gained during the AI & Data Science bootcamp



The bootcamp strengthened my data analysis and machine learning skills using tools like Python and Pandas. It also improved my teamwork and communication throughout the sessions. My view of AI shifted from a replacement for manpower to a tool that enhances human efficiency. This experience showed me how AI can support community solutions across sectors.



<https://www.linkedin.com/in/tahirih-malima-659403315/>



## Full List of Bootcamp Participants

1. Alexander	Gombar	11. Rabeccah	Zimba
2. Bright	Selemani	12. Ruth	Soko
3. Catherine	Kacheche	13. Sellah	Chiwaya
4. Elizabeth	Munthali	14. Shadreck	Mawindo
5. Ellen	Kalulu	15. Sibongile	Malama
6. Harold	Mkandawire	16. Tahirih	Malima
7. Lucky R.	Katundu	17. Thumbiko	Mkandawire
8. Memory	Ikwanga	18. Tommy	Banks
9. Nollah	Kumwenda	19. Tumpale	Winga
10. Paul	Atsu	20. Twambilile	Mwalwanda



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+265 888 86 08 10  
+265 999 20 73 43



Hello@emergelivelihoods.org



[www.emergelivelihoods.org](http://www.emergelivelihoods.org)