



AIMS

African Institute for
Mathematical Sciences
NEXT EINSTEIN INITIATIVE

The Secretariat
District Gasabo, Secteur Kacyiru
Cellule Kamatamu Rue KG590 ST
Kigali, Rwanda

AIMS Industry Initiative SMALL INNOVATION GRANT PROGRAM (SIGP)

Monthly Reporting Form

Accepting the SIGP Fellowship Award letter allows you to join the SIGP team. As a member of this team, you are expected to provide complete, accurate, and timely monthly reports co-signed by your supervisor (s) as outlined in your agreement letter. Failure to provide such reports will be considered a breach of the terms of your Fellowship. If you have deviated from your original work plan, then you must inform your supervisors using this form when submitting your report.

Once completed, this form should be renamed using the format “Your Full Name – Report Month Year” e.g. “HATTIE WRIGHT – Report November 2018” and submitted electronically as a PDF attachment to this email address: aii@nexteinstein.org. The subject of your email must be in the format “[REPORT] Your Full Name – Month Year” e.g. “[REPORT] DELICES MEDA – October 2018.” The committee will review your report and provide you with feedback. When applicable you will be required to resubmit a revised version of your report that addresses review feedback, before it is approved.

Once the report has been reviewed and approved, a copy should be emailed to aii@nexteinstein.org.



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1. Background Information

Report number (e.g. 1 of 4)	1 of 4	Reporting period	16/01/2023	15/03/2023
Title, names, and surnames	Yacouba OUEDRAOGO			
Host institution	University of Florida	The period spent at this institution	NA	NA
Address of host institution	289 Frazier Rogers Hall PO Box 110570 Gainesville, FL 32611- 0570, USA	Names of the main supervisor	Dr. Gerrit Hoogenboom	
Name of co- supervisor (if applicable)	Dr Vakhtang Shelia	Name of any other project collaborator (if applicable)	Mr. Traore Pierre Sibiry Mrs Janet Mutuku	
Title of project	Automating spatial crop production forecasts with dynamic EO products and feeder workflows			



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2. Finances

Category	Project cost (USD)
Amount received in this reporting period	750
Total amount received to date	750
Expected amount for the next reporting period	750
Expected disbursement date	NA

3. What were your goals and key objectives during this reporting period

Goal	Reinforcement of computer skills and acquisition of knowledge in crop yield forecasting methods
Objective 1	Spatial crop modelling and yield forecasting
Objective 2	Reinforce programming and database querying skills

4. What were your main achievements (main project results) during this reporting period? Kindly link each achievement to the goals and objectives stated above.

Objective 1: I conducted a short literature review on the prevalent algorithms employed in crop yield forecasting. My analysis encompassed a range of approaches, including statistical and simulation models. By conducting the review, gained a comprehensive understanding of the diverse methodologies available for crop yield forecasting. Additionally, I was able to evaluate the relative advantages and limitations of each method and draw comparisons between them. I have learned the architecture and functionality of CRAFT using provided documentations, a published paper on CRAFT and live demonstrations. During weekly on-line sessions I also discussed algorithms for agricultural yield forecasting implemented in CRAFT with Dr. Shelia and I explored a case study that was conducted using real datasets for one of the WA countries.

Objective 2: I have invested significant effort into enhancing my proficiency in programming languages such as C# and Python, and database queries by SQL. To achieve this, I explored various learning resources such as textbooks and documentations, as well as online resources YouTube, LinkedIn, Udemy. During my training, I focused on the fundamentals of C# using



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Visual Studio and familiarized ourselves with its syntax and nuances. My training will enable me to further improve CRAFT that is designed in C# and leverage this knowledge to create GUI forms and use mixed language programming style whenever necessary.

5. What are the outcomes or relevance of your project results to various stakeholders e.g. academics, industry, government, society? As much as possible, explain this in non-technical terms. If not applicable, kindly indicate with a N/A.

Academia (specify the disciplines)	Agrometeorology: Algorithms and approaches implemented in CRAFT for spatial yield forecasting
Industry (specify the sector)	Agriculture: The results will be used to support decision making based on forecast and potentially for planning of agricultural activities and policy decisions.
Government or policy (specify the sector)	Decision-making: The results should allow decision-makers or farmers to implement mitigation measures based on the results that will be provided by the agencies that will be using CRAFT.
Community (specify the community groups)	For farmers and decision-makers: The current project supports farmers and policy makers in their day-to-day activities.
Others (specify)	



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6. Papers published (if applicable). Kindly reproduce the table below by copying and pasting based on the number of publications to be reported.
-

Type of publication e.g. scientific publication or non-technical paper, chapter in a book, etc.	
Names of co-authors	
Title of publication	
Journal reference (vol., issue, page numbers)	
Journal type e.g. open access	
Status e.g. accepted or published only	
Reference link	
A brief non-technical description of the published work	
Recommendations from the work	
Proposed future work	

7. Scientific events/outreach activities attended. Kindly reproduce the table below by copying and pasting based on the number of activities to be reported.
-

Type of event e.g. conference, workshop, seminar, etc.	AIMS GEE Training Part1	
Full name of the event	Introduction to Remote Sensing and Google Earth Engine	
Organizers, host city, and country	SERVIR Science Coordination Office,	
Date of the event	8 December 2022	
Your contribution	Student/Participant	If other, please specify:



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Title of your presentation if applicable		
How did you benefit from this event or how did your attendance benefit others?	This training was very beneficial because it introduced me to Google Earth Engine (GEE). I acquired basic knowledge about GEE and remote sensing. It also gave me the opportunity to learn a new language, JavaScript.	

Type of event e.g. conference, workshop, seminar, etc.	Seminar	
Full name of the event	Support for research methodology	
Organizers, host city, and country	IDEM International, UK	
Date of the event	29 March 2023	
Your contribution	Participant	If other, please specify:
Title of your presentation if applicable		
How did you benefit from this event or how did your attendance benefit others?	I learned a lot about research methodologies, and data collection tools (Kobo, ODK).	

8. Scientific events/outreach activities organized. Kindly reproduce the table below by copying and pasting based on the number of activities to be reported.

Type of event e.g. conference, workshop, seminar, etc.	Workshop	
Full name of the event	FRN RM Session 2: Comprendre les réseaux en agroécologie	
Co-organizer(s) city and country	IDEMS International, UK	
Date of the event	25 January 2023	



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Your contribution	Participant	If other, please specify:	
Title of your presentation if applicable	NA		
Attendees e.g. academics, non-academics (specify)	academics and non-academics	Number of attendees	
How did you or the attendees benefit from this event?	This training was very beneficial on how to develop research questions, conduct data collection for a study, etc.		

9. Research visits. Kindly reproduce the table below by copying and pasting based on the number of activities to be reported.

Institution visited	NA	
Type of institution e.g. government, industry, research, etc.	NA	
City and country	NA	
Visitation period	Click or tap to enter a date.	Click or tap to enter a date.
Host (title, names, position, email address)		
Work is undertaken		
How has this visit benefited you?		

10. Deviation(s) from the original work plan. Kindly indicate if, how, and why you deviated from your original work plan if applicable.

NA



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11. State your next goal(s), objectives, and high-level activities for the next reporting period? (please copy and paste the below prompts as many times as necessary)

Goal	Develop expertise in crop yield forecasting methods, coding skills, and Geographic Information System (GIS) knowledge.	
#	Objectives	Activities
1	Spatial crop modelling and yield forecasting	<ul style="list-style-type: none"> Continue the literature review on crop yield forecasting methods. Investigate current state of early warning systems and yield forecasting approaches in West African countries.
2	Reinforce programming and database querying skills	<ul style="list-style-type: none"> Continue to improve skills in C# and Python through online resources such as documents and courses available on platforms like Udemy, Coursera, and Kaggle.
3	Develop good knowledge of Geographic information system (GIS)	<ul style="list-style-type: none"> Explore open online global weather data sources and APIs to them. Mastering using ArcGIS tools, including ArcMap and others (QGIS). Using R packages for maps and spatial data processing.

Yacouba OUEDRAOGO

14 - 04- 2023

Title and names of Intern

Date

Signature

Gerrit Hoogenboom, Professor

April 18, 2023

Dr. Vakhtang Shelia

April 18, 2023

Title and names of (co) supervisors

Date

Signature



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For use by supervisors or research collaborators	
Reviewed by	Comments
G. Hoogenboom	<p>The interactions with Mr. Ouedraogo were through Zoom due to the delay in the MOU and contract between ICRISAT and the University of Florida. Most of the meetings were facilitated by Dr. Vakhtang Shelia.</p> <p>On-boarding and progress towards learning spatial crop modelling and CRAFT has been good.</p>
V. Shelia	<p>Working with Mr. Ouedraogo only remotely because of delay of his visit to UF was quite challenging. Nevertheless, he satisfactory managed the tasks he supposed to work during the reporting period.</p>
Final decision	