Tomatoes Die: A Design Fiction for Grassroots Climate AI

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This design fiction proposes a panel session in the near future having environment and climate advocates share their stories of using artificial intelligence (AI) in their work. This work explores how the development of an embodied river persona, a farming assistant app, and a community hazard mapping tool could pose challenges and aid successes to respective local communities. Our design fiction highlights issues of design and development challenges that local organizations might face in a varied AI development for the environment. We explore questions around incorporating traditional knowledge, ethical participatory design models, and challenges of implementing and sustaining tools. Our work demonstrates how design fiction might be used to imagine AI for the climate challenge that considers people, place, and community.

CCS Concepts: • **Human-centered computing** → **Participatory design**; • **Computing methodologies** → **Cooperation and coordination**; • **Social and professional topics** → **Socio-technical systems**.

Additional Key Words and Phrases: climate, participatory AI, environment, design fiction

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1 Introduction

The climate crisis is causing unprecedented warming of the environment with projections that without intervention, the temperature will increase by 3°C by 2100 [23]. The crisis has largely been driven by human-led emissions [24], and to tackle the crisis, international, national, and local cooperation is needed to address various aspects of ecological risk, climate resilience, and temperature rise. Additionally, the burdens wrought by these challenges are not evenly distributed across the globe: the Global South for instance, faces disproportionate risks from climate fueled disasters [25]. Communities of color in the United States and Canada also face disproportionate impact from issues like wildfires, urban heat island effects, and sea level rises [3, 29]. The environmental justice movement has also called attention to how these issues fall unevenly along lines of Indigeneity, immigration status, disability, gender, and other marginalized identities [19].

The use of engineering technology to aid carbon capture [36] represents one approach proposed as a possible solution for ameliorating the effects of the climate crisis. More recently, new computing advances in the field of artificial intelligence (AI) and machine learning (ML) have proposed a wealth of areas for addressing climate change. These have ranged from mitigation and adaptation, to tools for action [28]. Specific areas for adaptation include reducing transport activity, managing forests, improving climate prediction, informing policy, and more [28]. Other reports have also suggested how artificial intelligence tools can support localized issues such as coffee farmers and local municipalities in climate planning [12]. Our focus on AI in this paper is not only in response

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to recent excitement around the technology, but also informed by previous workshops like those at ICML [8], in addition to formalized discussions by entities such as Climate Change AI in 2019[9].

Proposals at the intersection of climate change and machine learning raise crucial questions about whether AI can effectively and appropriately be integrated into grassroots, community-driven climate action. While climate justice emphasizes the need for equitable adaptations and solutions, many machine learning approaches to the climate crisis often overlook the role that communities could play in the ML pipelines. Beyond AI and ML, fields such as sustainable human-computer interaction (HCI) do not always account for community-based approaches to combat climate change [7], although sustainable HCI does provide tools for developing climate and environmental AI applications [13]. Our work is also inspired by existing speculative design around the climate crisis. In a review on speculative design in sustainable HCI, Soden et al. provoked that "speculative design needs to be grounded in a positive project that has some notion of how society transitions to sustainability and a sense of urgency about this process" [32]. Blythe has looked at how AI pastiches can aid in developing critical design fictions for climate change [5]. Our design fiction addresses the optimistic view of machine learning's possibilities and responds to Soden et al.'s provocations. It shares similarities with a novelette from the climate fiction novel *Our Shared Storm* which interrogates what a "middle of the road" climate scenario where progress happens but challenges remain looks like [20]. In this context, we explore realistic community-based AI approaches for addressing the climate crisis.

This design fiction seeks to bridge the gap between the literature on ML development for the environment and equitable and participatory ML. We speculate on the practical challenges of implementing community-driven ML systems for climate. Rather than just using the design fiction to consider auxiliary design features for climate systems [31], we grapple with the full lifecycle–from conception to deployment. This approach is inspired by ongoing research with members of the environmental and climate justice movements on how they perceive and wish to utilize artificial intelligence in their work. As part of the a separate study with climate and environmental activists, the authors heard inspiration for a farming app deployed in an urban agriculture context and for a voice of a water body to communicate with a community. The scenarios for a voice of a water body is additionally informed by the lead author's work at an environmental non-profit organization. The inspiration for a hazard map comes from a conversation with an Earth scientist and recent research on utilizing large language models for tribal emergency preparedness [15]. We chose to use probable and positive scenarios in our design fiction because it was the perspective of those who inspired us took. Our design fiction seeks to imagine what some of these scenarios in the near future might look like.

Similar to other climate fiction, like *The Ministry for the Future* and *Our Shared Storm* our design fiction is set at at the United Nations (UN) Conference of the Parties (COP)–the largest international meeting for climate change [20, 27]. The design fiction is set in the near future and involves North American panelists participating on an international session at COP contemplating their use of AI. We use this future UN conference to consider the systems used to combat climate change: exploring the broader emerging issues including local knowledge and environmental impacts of such systems.

2 The Design Fiction

Host: Welcome to the 2028 COP Workshop forum on Localized AI Successes in the Environment! We have a panel discussion today with three guests from the United States and Canada discussing their trials and tribulations with the use of AI for the environment in their communities. We are focusing on insights from local communities' approaches to understand how global lessons can be learned and transferred from these places.

Our first guest is Marilyn from Marshville, a city on the East Coast of the United States with a major river named the Martin River running through it. They developed an AI persona of `MartinAI` for local communities to interact with–to understand river conditions and local watershed policies.

Our second guest is Khalil from Grantsville, a mid-sized city on the Prairies facing economic upheaval with the rapid technology shift of factories. Khalil works on an urban farm and has collaborated with a local technology retraining program to create a farming assistant app.

Our third guest is Juniper. She comes from a small village just south of the Arctic Circle. She works on helping her village's government with multi-hazard mitigation. She created a local web page to help residents and the village council members understand multiple levels of potential climate related hazards facing their village.

Please join me in welcoming our panelists.

[Applause]

Each member of the panel will present their creation, followed by a moderated panel that will include some audience questions. I will now hand over to Marilyn.

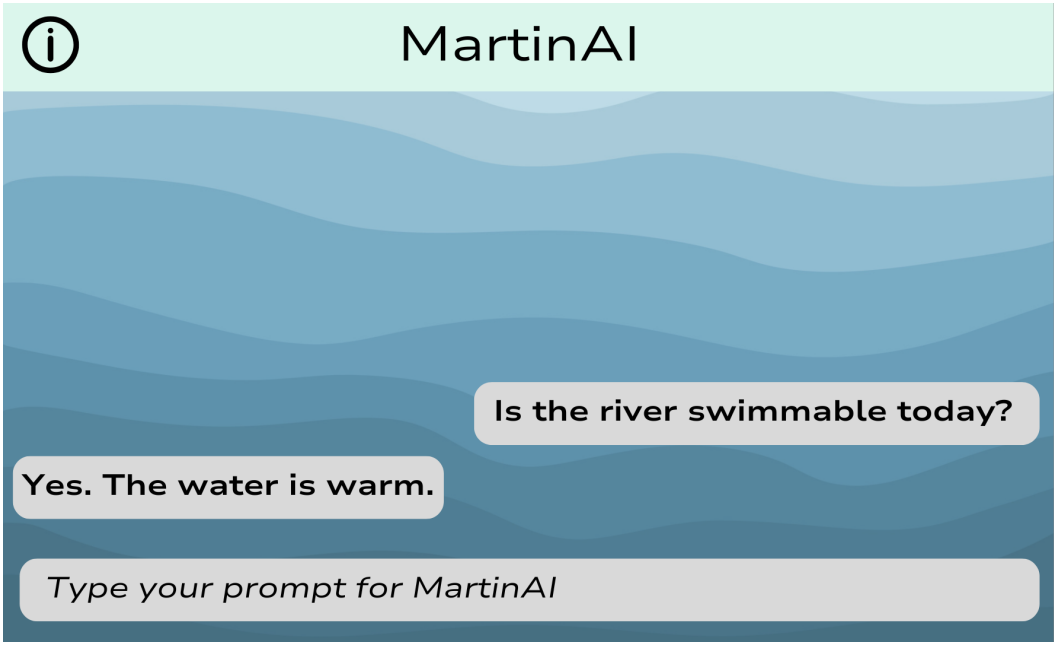

Fig. 1. A mock-up of a user interaction with Martin AI

Marilyn: Thank you for the introduction! I'm Marilyn as mentioned before from Marshville. I'm a lawyer with an environmental non-profit working for the Martin Rivershed Association. We work on protecting the river and monitoring its health for all 28 towns and cities that live, work, and play along our river. While not working on enforcing local stormwater codes, I was reading about the Whanganui River in Aotearoa/New Zealand being granted legal personhood through the notion of "rights of nature." I was trained as a pretty conventional environmental lawyer in the US where the "rights of nature" is only getting started. Coming from a small non-profit with limited resources and

an urban river with improving water quality and protection, I knew I wasn't going to argue a case in court. But, I wanted to know how I could explain this idea of personhood to people in my region.

This is where I dreamed up `MartinAI`, an AI chatbot hosted on our website. It's nothing too fancy, but it's an large-language model (LLM) persona I trained with the help of an intern during the summer. We already monitor things like phosphorous levels, cyanobacteria blooms, E. Coli, chloride, among other things. We wanted the community to have access to our most recent data through the chatbot, but also understand: how a river might feel about all the combined sewer overflow from a couple more populated cities along the river; the mishmash of stormwater policy differences between upriver and downriver communities; and even how salting during the fall and winter really hurt water quality.

These were all big issues we dealt with everyday in the non-profit, but we had to figure out how to configure them into a chatbot. A regular user might care to find out if they can go for a swim or for a fishing trip along Martin today, but probably doesn't care if their town has too much impervious ground. The chatbot instead attempts to make the river a person, and walks the fine line of anthropomorphization–like you have the option to just listen to sounds of lapping water and also chat with it in English. There's also significant issues that our chatbot doesn't incorporate, such as any knowledge from local Indigenous groups because we didn't hear back from our contact in time. The chatbot is conversational, and talks about the creatures and communities that depend on it but won't wax poetically on things like how the strong current at the bend along River Road is making it feel sad.

Overall, we've had good reception of the river chatbot making Martin River more accessible to our community members. One local polar bear plunge group uses `MartinAI` to help them decide if they can swim in our river regularly. My child's elementary school used it recently in an art class to help students engage with the river before making collages to explore different aspects of the river. I don't think Martin River is getting legal personhood any time soon, but the chatbot has definitely helped people connect more one-on-one with a river they might walk or drive by everyday.

Khalil: Thank you Marilyn for describing such an interesting AI chatbot persona. My use of AI is a little different. I come from a family of refugees that were resettled in Grantsville. We didn't have access to our traditional foods like cowpeas and sorghum. An auntie in our community, Filsan, lived next to an abandoned property, and started informally growing cowpeas to give out at community gatherings. Inspired by the success of this, Filsan, her kid, my friend Lulu and I co-founded an urban farm on the deserted lot that we called `GrowFeedLove`. We wanted to grow food not just for our community but also for other refugee and immigrant communities like ours.

We faced a lot of challenges while starting to grow sorghum. At first, the crop didn't like the shady spot on the corner that we put it in, so we had to move it. Then we had some other refugee community members join the farm and wanted water spinach, but we had no idea how to grow them... and things snowballed from there. To manage all of this, and to help with timing and different harvesting principles, we thought that there had to be a better way than the 100-row spreadsheet that we used to keep track of all our different cultivars.

Soon after, I discussed this with my friend Mark who helps run a retraining program and coding bootcamp for local workers who were recently let go by this manufacturing plant that closed down in town. Taking advantage of the synergistic opportunity, we gave them access to some older harvest data we had, some standard plant information about our different cultivars from different almanacs and garden websites, and advice from older farmers in our community. They started to develop an app that also took in local weather information to help us plan out different times to start germinating seeds, transplant seedlings, and harvest our food. The app has helped us manage

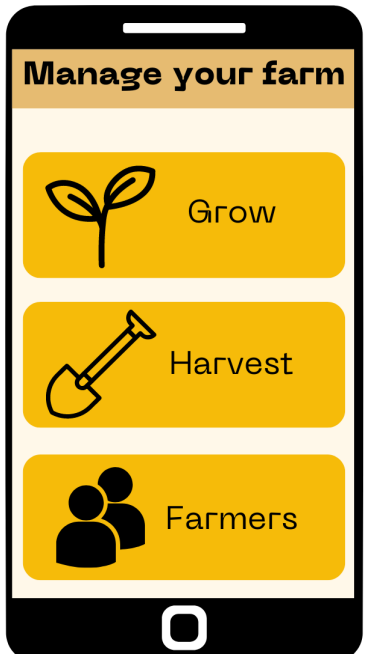

Fig. 2. A mock-up of the GrowFeedLove farm management app home page

our farm with our ten employees, 20 youth workers and volunteers, and also helped increase our farm's yield.

The app definitely hasn't always been great, especially given the challenges of land-based practices like farming. For instance, we have always known that the part of our farm that backs up against a public park tends to hold more soil moisture than other parts, but it gets really good sun exposure. So the app recommended we transplant our new tomato seedlings there–which ended up dying before their harvest date even though we tried all sorts of things like adding more nutrients to the soil and checking for pests. Then an elder volunteer overheard us bemoaning our tomatoes. He pointed out that tomatoes can't handle waterlogged roots and that they'd always been grown in the drier part of our farm. Because of such experiences, we've also started to rely on our intuitions: since we've become more experienced farmers. This creates harmony between our land-based knowledge and the science behind growing food.

Juniper: It's lovely hearing about the work from Khalil and Marilyn. I'm Juniper, from a small village just south of the Arctic Circle. I work with our village municipality as the emergency manager. Basically, I try to figure out how to prevent emergencies and prepare for the ones we can't prevent for our village of around 1200 people.

When we started our new hazard mitigation plan, I knew I wanted something that was more engaging for our community. Predicting future emergencies and hazards is an imperfect science. We decided to partner with our usual experts and also a local Alaska Native Corporation AI consulting business. After winning a state grant for communicating about emergency management, I decided to create an AI-powered risk assessment tool for the village using historical emergency data, climate projections, weather data, and geological surveys.

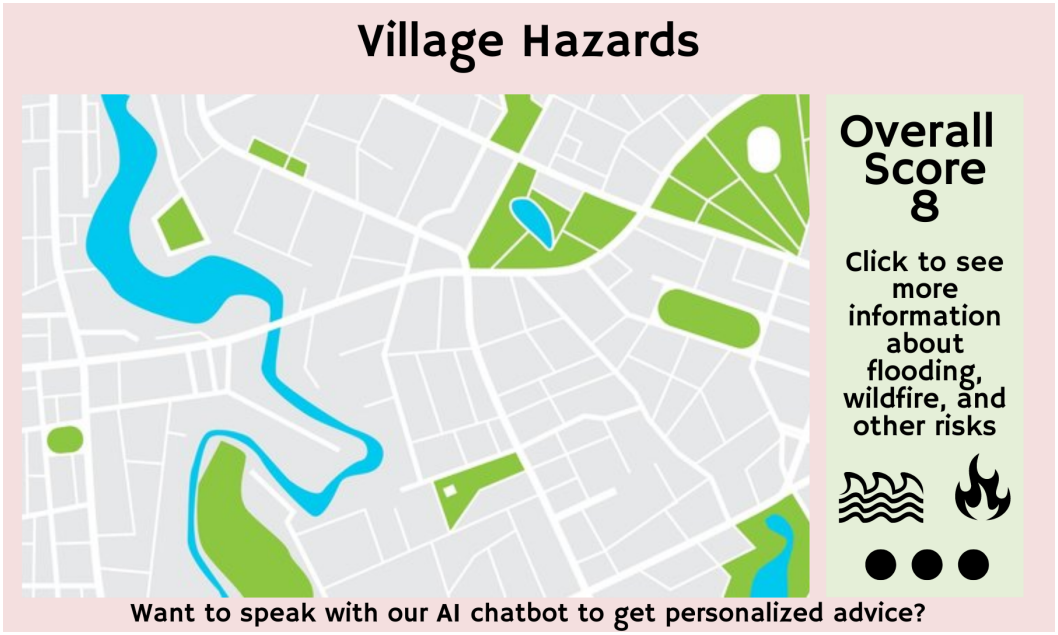

Fig. 3. A mock-up of the village hazard map and hazard scale

Village members are able to input their address and get an individualized risk score based on different hazards we addressed in our hazard mitigation plan for the village. Some people in our community don't have addresses though so we also have neighborhood breakdowns. Village members are able to see the breakdown of what poses the greatest risk for them. For example, our neighborhood of Forest Mill is most vulnerable to wildfire risk whereas Harborfront is most vulnerable to seasonal flooding from the river. There's also a chat interface with information and resources for emergency preparedness for village members. It includes links to federal, state, and village resources for both mitigation programs and preparedness resources.

Of course not all of this is an exact science. Recently, our village had to evacuate because of wildfire smoke. Thankfully no property was harmed by the wildfire, but we had predicted wildfire risk to be quite low for most of the town. Because of this, residents hadn't prepared a "go bag"– as we had only factored in property damage risk into the risk tool and not included precautionary evacuations. So this is a learning experience. Thank you.

[Applause]

Host: Thank you to each of you for sharing how you have utilized or attempted to utilize AI in your community climate and environmental initiatives. Now we'll be transitioning to some pre-prepared questions for the panelists. For each of you, we heard about some setbacks you experienced with AI. How do you anticipate unforeseen consequences when developing your tools with the community?

Khalil: I can go first. One thing we definitely worried about was farm yield. GrowFeedLove uses a community supported agriculture model, people pay us $350 up front for weekly deliveries of seasonal produce. While no growing season is without risk, we were really worried that if the

AI was poorly trained, we might have much lower yield. This meant that we took a piecemeal approach to rolling out the technology–only managing half the plots with the app the first year.

We were also really worried about how our elders' stories would be captured and translated in the training process. Some of their growing knowledge is from a lifetime of farming experience. What would it mean for all of that to be public? Would they be okay with strangers reading this? Is it okay to mix their knowledge with other sources like almanacs and gardening websites? We tried to have a focus group with our elders, but it was definitely hard explaining to them what the AI was. The general consensus was they were okay with sharing their knowledge, and before seeking their knowledge, we explained the whole AI process to them again. I definitely wish we had been able to explain more to them beforehand.

Marilyn: I don't think we really thought about unintended consequences during our design process. In `MartinAI`, we have a disclaimer cautioning all to consume the information with a grain of salt. I also think the context is different and less crucial, because what we have is a persona of a river. We're not using an app to help farm to feed community members.

Khalil: I don't know. I think ignoring those unintended consequences is just plain bad design when it comes to AI.

Host: Thank you Khalil, please keep it professional. What about you Juniper?

Juniper: We definitely thought a lot about misinformation as an unintended consequence in our emergency chatbot process. We were pretty confident in our risk scoring since that's a pretty well established methodology in risk mitigation systems. We were also able to hire an outside consulting group to double-check our scores and methods. The chatbot though is where we got wary. FEMA and the state of Alaska both have resources for emergency preparedness. We were worried that our chatbot could give wrong advice. We could really endanger village residents who were trying to build an emergency "go bag" or what food to store in their pantry. We have links in the tool directly to official information, and we also did community testing of that chatbot. We didn't see any of these fears come true but are still worried that something could go wrong.

Host: There's a lot of community members affected by the tools. How was the process of engaging stakeholders through the design process for each of you?

Marilyn: I can take this question first. We really wanted to engage watershed residents in the design of the tool. If we couldn't get people to conceive of the rights of nature or influence shifts in attitude, there wasn't a point in building the tool. We put out a call in our newsletter and working with our intern, I did user testing while designing the tool with mock-ups and also when we first started beta testing the tool. We also have an existing river education program with a local school, so we were able to pilot `MartinAI` in two third-grade classrooms to supplement existing curricula.

Khalil: This was also something really important for us and different for the app developers we were working with. We wanted them to understand that they weren't designing tools for singular users, but for our entire farm. This meant that all of our collective farmers attended the weekly check-in meetings we had with the development team. We also did the beta testing not just with me and another experienced farmer, but also with a couple of the youth workers and elders.

Juniper: I think differently from Khalil. We were designing a tool to engage with the community–similar to Marilyn. Some of the questions we were asking were: How could we create a tool that helps people understand their individual emergency and hazard risk without freaking them out? How could we engage people to not just learn about their risks but also prepare for emergencies? We took a community co-design process: meaning that we, through our grant, were able to pay a small stipend to community members to remunerate them for attending workshops and building with us through each step. This also helped get the word out to friends and family because so many community members were involved in the design.

Host: To close out the moderated section of our panel I'd like to ask: What advice would you give technologists who develop AI for communities facing environmental and climate challenges? Alternatively, what advice do you have for communities curious about AI?

Khalil: I would tell technologists to look around them first. You don't have to develop for people far away. The people who need your skills are all around you. I think this is something we were very lucky with. We had a local boot camp that needed our project, so we were able to keep jobs and the development local.

To communities curious about AI. I would say first look internally. There will be a lot of distrust of AI within your community. Be curious about that distrust. What can you learn from the distrust? Then, move with the speed of trust.

Juniper: I would echo everything Khalil said. I do think it's important to note that words matter. In this panel, we've been discussing AI using very liberal terms because that's what people know. They know ChatGPT, video editors, and more. But when you talk in more detail with community members, I would say get technical, don't assume they don't know anything. Use the fancy words like "natural language processing", "computer vision", "machine learning", "convolutional neural network" and so on.

Marilyn: I'll just pipe in here to ask that technologists think about the system they're leaving behind when they move on. We needed to be able to update `MartinAI` with our weekly measurements. We couldn't do that if we had to use a command line interface. Our water monitoring program staff don't have deep technical knowledge about programming; they have deep knowledge as environmental scientists. We had to remind our intern about that. Keep it simple. Make it something we can maintain. To other people working in the movement who are curious about AI, I would also encourage them not to be shy about asserting their needs. If you know the technical solution is sexy and nice, also make sure that the backend still works for your staff and community.

Host: Thank you all for sharing your perspectives and presenting what a community-based approach to AI for climate and the environment might look like. We have time for about two audience questions before we have to close out the panel.

Audience Member: Thank you all for speaking with us. AI takes an enormous amount of energy to train and use. As people concerned about the environment, how do you deal with the inherent contradiction of using more energy-intensive technology in your work when most of your projects seem auxiliary and not central to your work?

Marilyn: Thank you for the question. To be honest, we've only quantified our energy use as a non-profit, not project by project. I think internally we are part of our local community choice

energy program that allows us to opt-in to all renewables.

Juniper: I think this is where we use a trade-off perspective. It's going to take a lot more energy to house and rebuild our community in case of a disaster than it would to use an AI tool. I'll also be upfront and say that our community uses diesel generators and wind turbines to generate energy. I'm not sure how exactly the AI was trained or the energy sources used to do so, but whatever it was, it'll definitely be less expensive than rebuilding our community if no one is prepared for a wildfire or flood.

Khalil: Marilyn, your design choices or lack there of, are still surprising. I think we've done a nice job of trying to estimate the amount of carbon we used to train and run the app. We did some back of the envelope calculations with what we were able to find online. I don't have the numbers right with me but you can email me after this and I'll follow up. Then we crossed this by how much carbon we typically save from not using conventional growing techniques. The AI training did take a bit more energy. But we think about the skills we helped the bootcampers develop, and the opportunities we open up in the community. And it balances out OK.

Audience Member 2: Thank you all. I'm in the process of contacting developers for my own idea using my citizen science monitoring project data. What was one thing you wished you knew before undergoing this whole process?

Juniper: I'll go first. I wish I knew how hard it would be to roll out this tool in a village that has technology access issues. Many people share devices in the village or have poor internet connection. We should've been more proactive about developing a better mobile site, since people have more access to phones than laptops in our community.

Khalil: I want to echo Juniper. We had to ask for phone donations from the community because some of the youth workers didn't have advanced enough phones to use the farm assistant app. One thing I'm happy we did keep throughout the entire process was our Elders' Group. We still turn to them first for growing expertise before the information in the app. I would advise that you do not get rid of human knowledge as you undergo an AI design process.

Marilyn: The trolls! *[Audience laughter]* Sometimes people try to ask inappropriate questions of `MartinAI` and end up using a lot of our credits on really obvious bad-faith conversations. Ensuring safety and good intentions of users is hard, and we still haven't fully figured it out. Definitely think about how to limit users before you end up using all your cloud credits on trolls. We also only got funding through a grant for this for one year, and haven't been able to get sustained funding. We've also had unresolved internal discussions about whether or not we think contributing to emissions to the atmosphere from running `MartinAI` is OK or not.

Host: Thank you to each of our panelists for sharing your knowledge and experience. We are so happy to have been able to host this platform for us to share ideas about how to implement AI responsibly at the local level. I hope the rest of COP is as illuminating. I wish you all a good day.

3 Author's Note

Design fictions allow us to imagine idealized worlds and reflect on the repercussions while balancing techno-utopian and techno-pessimistic approaches. In this design fiction we take an extrapolative approach, whereby we imagine current technology and envision what we might want to see [6].

Beyond imagination, we also reflect on current tensions: projecting them into future contexts through critical reflexivity of environmental (justice) community leaders that seek to leverage AI. Inspired by other speculative work in sustainable HCI we seek "to not impose [our] understanding of sustainability and sustainable behaviour onto others" [7] and to be mindful of issues involved in speculating for sustainable HCI [32]. Additionally, we acknowledge the significant environmental impact of AI [2, 11] and data centers [18], and emphasize that our design fiction primarily explores the tensions AI creates for the grassroots environmental and climate movement, rather than directly addressing these impacts. We are grateful to the scholars who critically examine these issues and hope that others will use similar and other approaches to explore how grassroots climate organizers navigate the environmental challenges posed by AI.

In the sections below, we expound on how our design fiction prompts us to think through people, place, and community in the design of grassroots climate AI– drawing on perspectives from environmental justice.

3.1 People: (Imagining) AI Participation

There is burgeoning corpus of literature imagining how participatory research methods might be used to co-develop AI [33]. In our design fiction, we attempt to work through how the previously identified limitations of participation occur. These include: democratic governance, the confusing of participation with inclusion, possibilities of co-optation, and lack of appropriate measurement for effectiveness [4]. Additional literature highlight the challenges in the use of participatory methods in technology co-development, particularly with marginalized and racialized groups in the United States [16]–echoing the populations represented in this paper.

Our design fiction attempts to deal with some of these complexities by demonstrating what community-led AI might look like. Despite these initiatives being community and locally-led, we encounter similar challenges. The nature of this include the imagining of inclusion through not hearing back from local groups, and by using transactory relationships such as an Indigenous group's perspective on personhood of a river. The same tensions around listening to community comes up in the development of the AI farm app, through difficult process of working with community elders with low digital literacy. Even when compensation through the hazard mapping process is possible, the same repetition of only allowing engagement through workshops and co-design emerge. In each example of the design fiction "participation-washing" and imperfect uses of participation [30] repeatedly arise. These examples demonstrate how inequities from climate harms can replicate in climate solutions, an oft ignored part of speculative design regarding the climate crisis [32].

These harms are not solved solely via participation. Even when participation is used in the design process, it matters how participation continues through deployment and governance processes. Community-led initiatives do not solve the issue of participation, and additionally, more effort is necessary for marginalized communities to access technical expertise while still innovating in methods of participation. Beyond just the design process, ongoing and future research in this domain should consider how community-led initiatives for climate AI can incorporate community accountability through methods like evaluation and community ownership. If power from climate enabled AI is shifted towards people centered participation, this will require major investment and infrastructure shift [37]– a fact that is not wholly realized in this design fiction.

3.2 Place: Designing for the Local

We prioritized the grounding of examples in specific, even if fictional, locations. For example, the issues regarding water drainage not taken into account through the farm app demonstrate that micro-geographies of a place can often not be replicated by technical systems that are not engaged with land-based knowledge. The tomatoes also illuminates where a technical solution might not

have even been needed at all [1]. This importance of place is seen throughout climate fiction due to the "place-and-time-bound nature of the climate crisis" [20]. A place-based vision for AI means designing from a local perspective engaged with the land, but also the more-than-human design considerations needed for AI in a specific geography [10]. There are proposals for incorporating environmental justice principles into algorithmic auditing as socio-ecological-technological systems [26]. We wonder what an environmental and place-based approach to design, and not just auditting, might look like. Future work might take prompts from Rakova et al [26] as places to start design ideation, beyond just auditing.

Thinking through local deployments of technologies in locales allows us to wonder from "somewhere" [21]. Rather than thinking through climate AI only from top-down approaches, we imagine what a place-based approach might be. The village hazard map is an example of explicitly wondering from somewhere including thinking through how marginalized communities often face friction when using technical systems. For example, the village hazard map has neighborhood breakdowns because often without routine residential address systems those in rural and remote communities face difficulty with automated systems and bureaucracy [22, 35]. Designing local AI allows us to consider beyond just users in a specific place and "somewhere", but also encourages an AI ethic concerned with the environment.

3.3 Community: A Grassroots AI for Climate?

Finally, we consider how our design fiction approach requires a community centered approach to creating effective climate AI. A key point for the climate crisis is to understand that technology alone will not fix the issues and that coordinated high-level actions are needed at the national and international levels. However, climate resilience and mitigation strategies often happen at the local and grassroots level. From an environmental justice praxis, communities understand themselves the best and know the issues happening in their space and place [34]. Drawing on this understanding, a grassroots formation is necessary for climate technologies and AI. In this design fiction, we brainstormed how the economies of AI might allow this, for instance through local development with retraining workers in a bootcamp and a local Indigenous consulting business. Moreso, we chose to keep each example discussed small and applicable to small non-profits and collectives.

A call for grassroots AI echoes Ghoshal's et al calls for a grassroots culture technology [14]. Throughout this work, we explored what the grassroots AI for climate might contend with: considering how grassroots systems are imperfect such as the value-risk of taking elder's growing knowledge to be placed into a model. Other examples include differences in technical knowledge across movement spaces and also technology access to phones and computers. We also consider resource allocation through the discussion of choosing to continue funding `MartinAI` and the decision to compensate community members in helping design AI. Further, a grassroots design of technology also speaks to how grassroots-designed systems can't necessarily be designed for using traditional user-centered design systems but have to be designed for entire collectives like the urban farm [17].

3.4 Lingering Thoughts

In these author's notes, we explore how the three distinct tools within the fictional panel can reveal various challenges in the future development of community climate AI. We discuss how involving people can lead to complexities in creating participatory AI systems, emphasizing the need for further development in participatory methods and infrastructure. Additionally, we recognize the importance of considering the geographical context, through the place theme, in order to tailor community climate AI solutions effectively. We contemplate how environmental justice principles

can be integrated into future community climate AI development. Finally, we use the community theme to envision a call for grassroots culture for AI in climate, acknowledging that our work serves as a starting point. There are deep contradictions between ideas of community-based climate interventions and AI, leading us to question whether community-engaged climate AI might be inherently impossible due to the climate impacts of AI itself. Currently, there's a cross-pollination of ideas between the themes of people and community that is intertangled given the near future setting of this work. Importantly, we emphasize that while AI is a valuable tool, it is just one among many in our diverse toolbox for combating the climate crisis.

4 Conclusion

Our design fiction allows us to think through the specific challenges to creating AI systems for local climate and environmental needs. We have explored the continued challenges we are likely to face in developing participatory AI with local communities and the needed focus on the "somewhere" for designing AI systems for climate. We have also demonstrated potential dialogues and ideas in the continued tensions between wanting to access AI tools to better address environmental needs but the consistent trade-off of the environmental impacts and externalities of AI tools. We bridge insights from sustainable human-computer interaction and participatory AI to foster more community-led initiatives in the realm of climate AI. Our exploration of the themes of people, place, and community offers a foundation for analyses and initial steps for those developing projects in community climate AI.

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