From Extraction to Empowerment: Recent Developments in Community-Based Computing Infrastructures

Presented by
Kwame Porter Robinson

PhD Candidate, School of Information, University of Michigan

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From Theory to Practice: Building Ethical and Trustworthy AI

About me

kwamepr@umich.edu

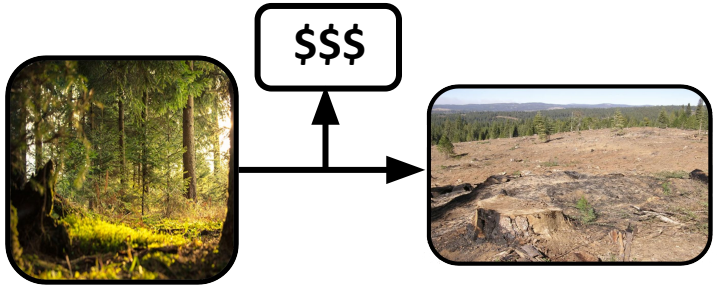
Solidarity with GEO

Grads at U-M are struggling. The gap between our salary and the cost of living has **tripled** since 2020. **We cannot get by on $24k per year.** HR is refusing to recognize the problems we're facing and has offered us an **effective pay-cut**.

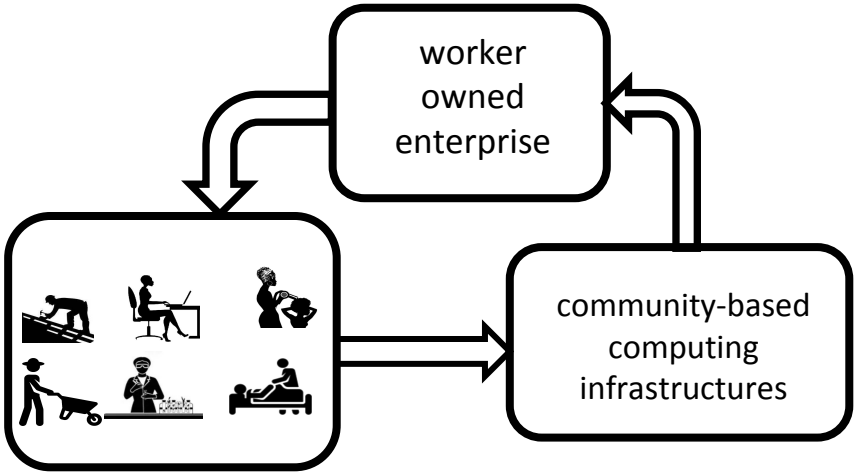
Introduction and Background

Top-down AI Ethics vs Bottom-up AI ethics

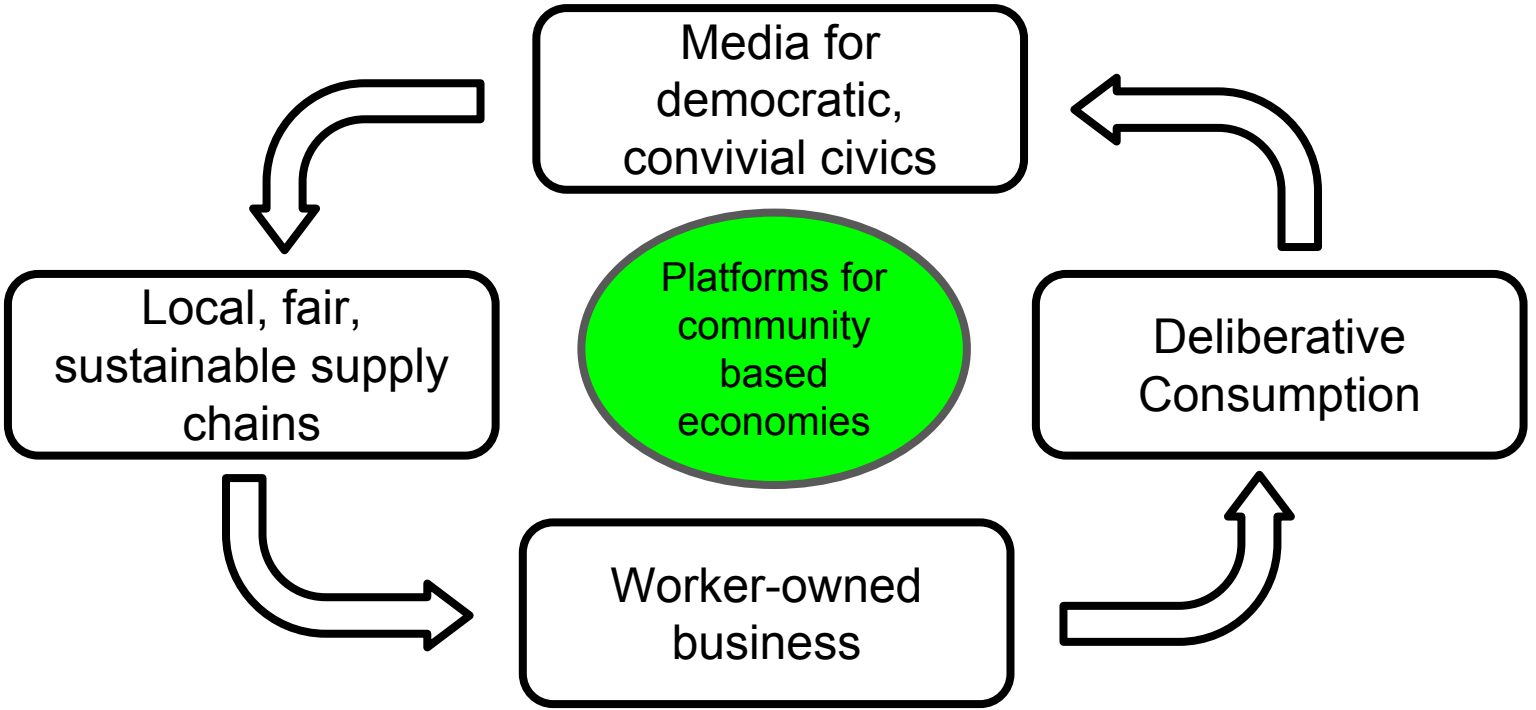
	Top-down AI ethics	Bottom-up AI ethics
Point of intervention	Corporations, federal regulation	Worker-owned enterprise and community-based platforms
Goal	Keep corporations wealthy while mitigating AI harms	Shift wealth production from corporations to communities and workers
Mechanism	Adjust algorithms to reduce bias	Develop AI applications that empower workers and community



Just as extracting value from nature destroys the ecosystem's generative abilities, extracting social value and labor value depletes our civic life and democracy.



AI for community-based economies returns value rather than extracting it


Media for democratic, convivial civics
Local, fair, sustainable supply chains
Platforms for community based economies
Deliberative Consumption
Worker-owned business

Method and Results

AI Development for Community-based Economies

Scale	AI contributes to	Current status
Micro-economic	Digital fabrication, product design, digital farming, upcycled materials	Initial outcomes: new products, processes
Meso-economic	Optimizing supply chains for B2B localism, locally owned e-fulfillment services and other localized cloud services	On-going experiments
Macro-economic	Platforms for deliberative consumption and returns to civic institutions in education, housing, finance, ecological sustainability	Initial discussions with civic organizations

Micro-scale: digital fabrication, pattern generation, optimizing sustainability

Development required prior to technology

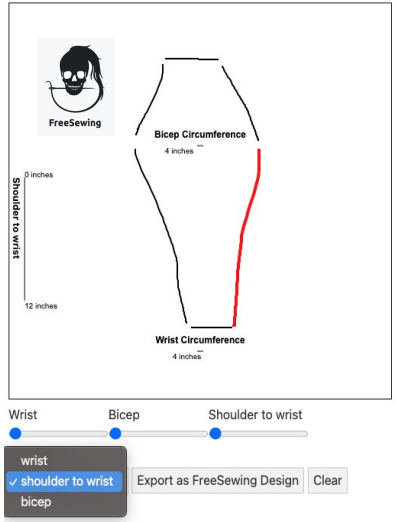
Solar powered rain catchment for urban farm irrigation

Funded by NSF Community Foundation for Southeast Michigan

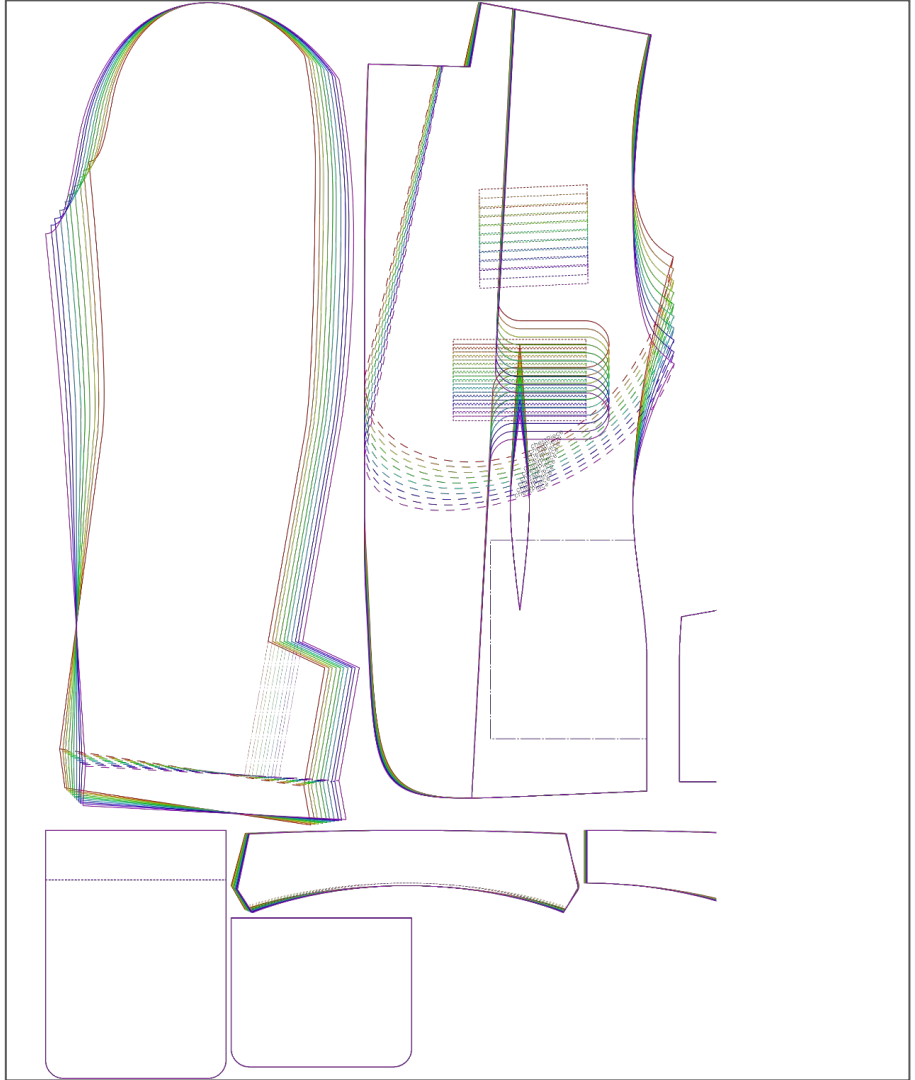
Technology used as intended

Technology adapted for specialized use

Technology innovation



Micro-scale: AI for Clothing



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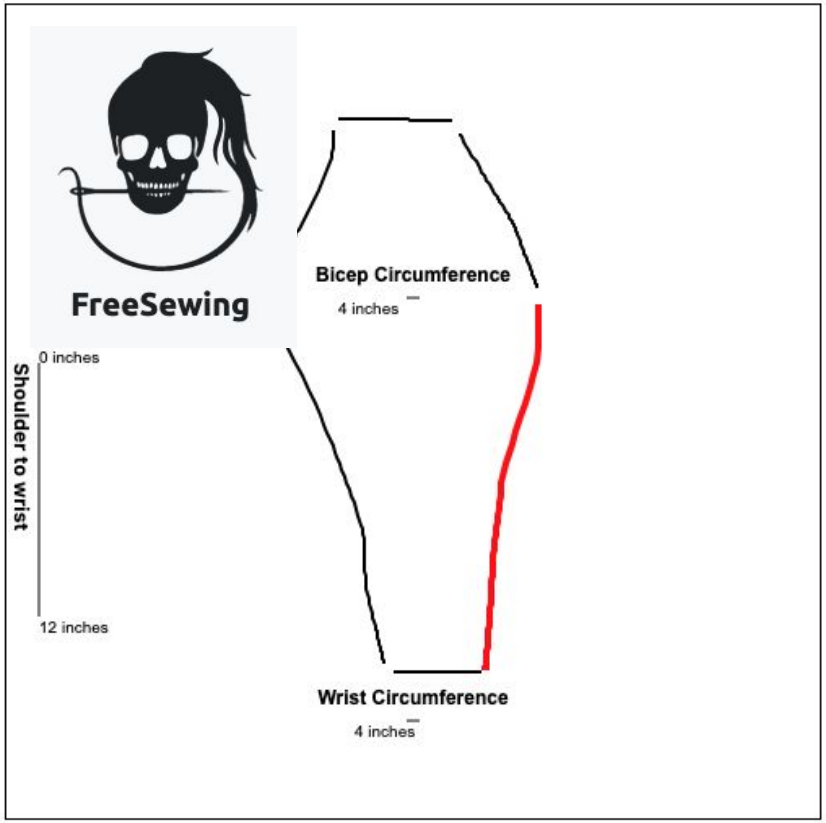
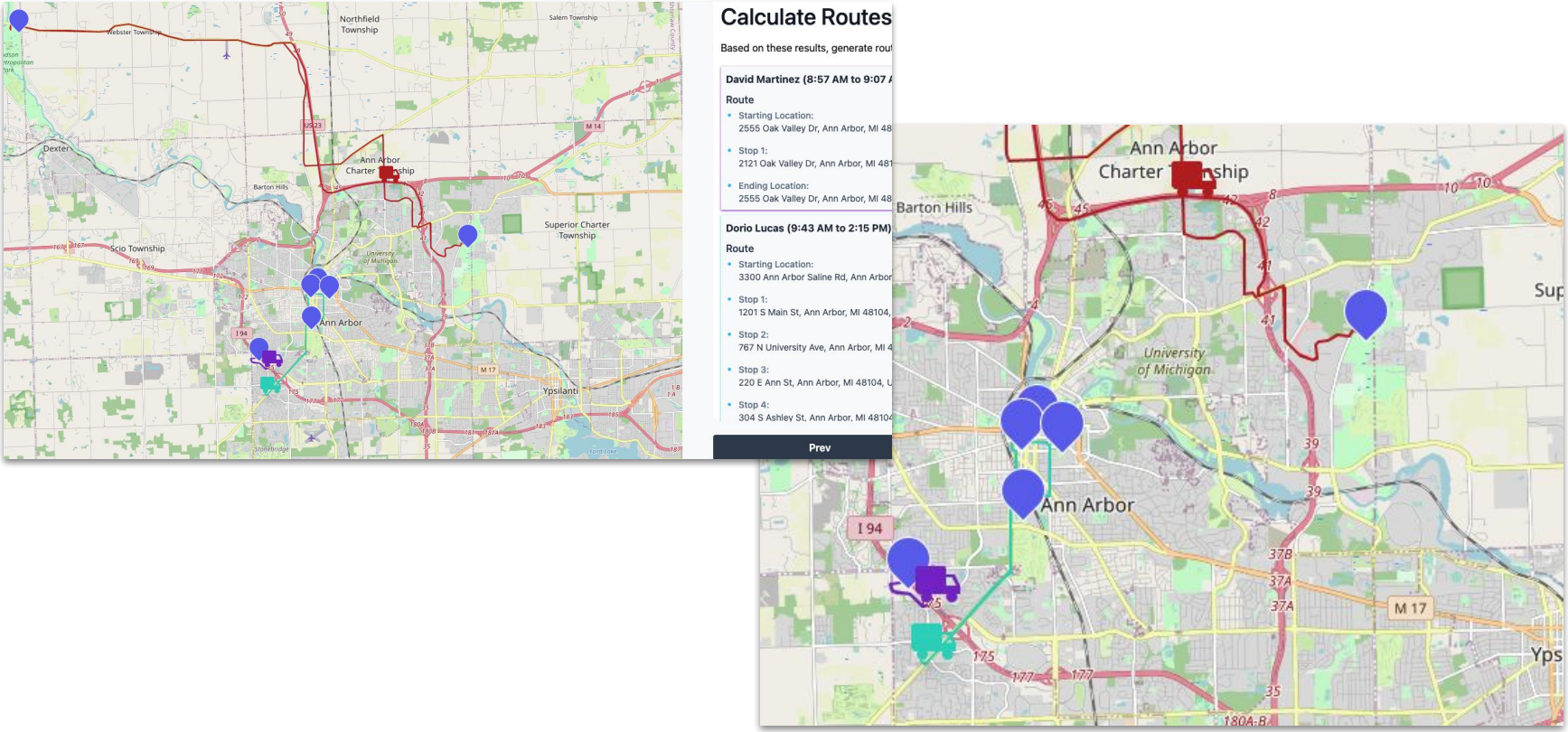


Wrist Bicep Shoulder to wrist

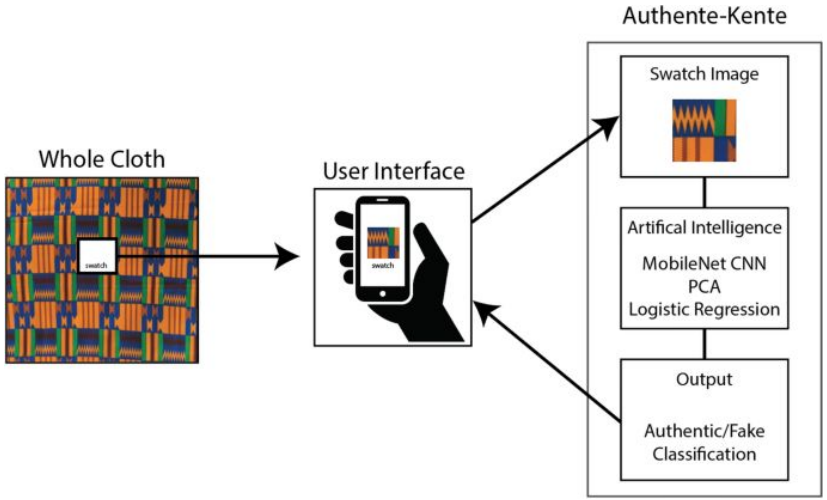
wrist
✓ shoulder to wrist
bicep

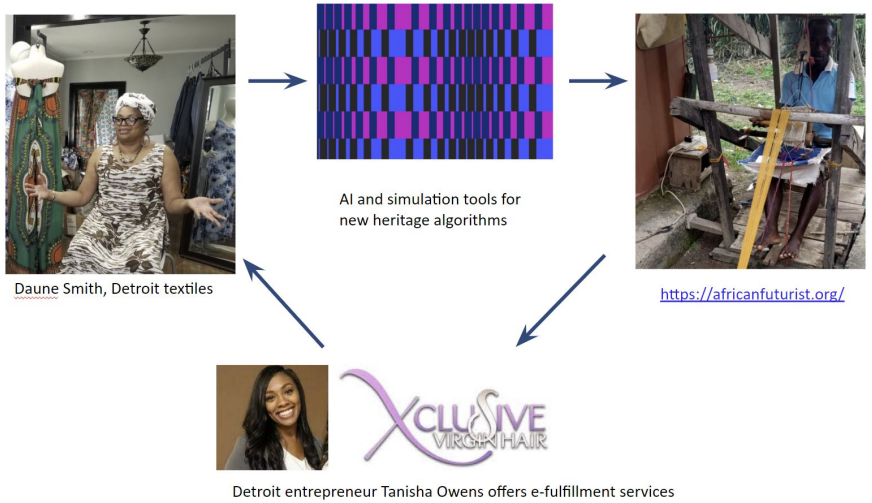
Export as FreeSewing Design | Clear

Meso-scale: local e-fulfillment, localization of supply chains, B2B collaboration



Macro-scale: Platforms for deliberative consumption, search engines for generative economies *





Re-connecting consumers and producers for relational economics

Robinson, K. P., Eglash, R., Bennett, A., Nandakumar, S., & Robert, L. (2021). Authente-Kente: enabling authentication for artisanal economies with deep learning. *AI & SOCIETY, 36*(1), 369-379.

Eglash, R., Robert, L., Bennett, A. Robinson, K., Lachney, M., Babbitt, B. (2020). Automation for the artisanal economy: enhancing the economic and environmental sustainability of crafting professions with human–machine collaboration. AI & Soc 35, 595–609.

Macro-scale: Platforms for deliberative consumption, search engines for generative economies

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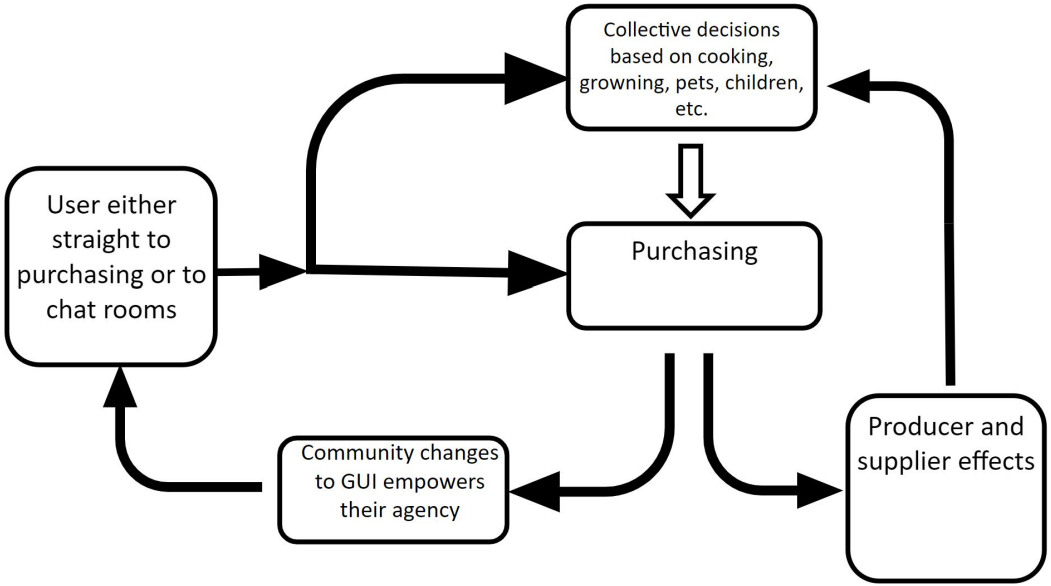

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A challenge: how could you develop bottom-up AI in your domain? How might bottom-up and top-down work together?

Domain	**Top-down AI ethics**	**Bottom-up AI ethics**
Mortgage	Eliminate bias in loans	Use land trusts etc to reduce need for loans
Law	Eliminate bias in sentencing	Use restorative justice rather than incarceration
Health	Eliminate bias in treatment	Broaden preventative care to include social causes

Thank you for your time! Questions?

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