1   Introduction

Context/Need/Gap/Hero Funnel. sample citation: [**matthis˙retinal˙2022**]

- Our current institutions of education and scientific research are inequitable, exclusionary by design, and ill-equipped to address the existential threats and transformative opportunities presented by the rise and spread of high technology through a globally interconnected world.

- The current system is a built around a massive concentration of resources within Ivory-tower institutions, with research occuring in siloed 'cottage industries' driven by student labor and debt within a gerontocratic ponzi-scheme competition based heirarchy predicated on the assumption of lateral competition predicated on assumptions of false scarcity.

- To face the rising challenges and seize the opportunities, we must develop new institutional structures based on a commitment to the values of *Universal Access and Universal Design.*

- *In this proposal, we present a potential model of an Open Source Ecosystem (OSE) as a prototype organization structured in service of these needs.*

- *Specifically, we descripbe a plan to buttress and shape the burdgeoning community of users, developers, students, and educators forming around the FreeMoCap Project (FMC) into a self-sustaining and expansive Open Source Ecosystem (OSE).*

- *Our plan comprises 3 inter-woven foci - - A core software platform and framework for the measurement, analysis, and visualization of human and animal movement (FMC-Core) - A broad and diverse userbase representing wide array of backgrounds, interests, experience levels, and geographic sprea (FMC-Community) - A self-sustaining organization to support a dedicated team of core maintainers who ensure the healthy growth and long-term stability of the ecosystem (FMC-Foundation)*

1.1   Intellectual Merit

- Enablabling tech-forward integrative research - Rosetta Stones and Systems Engineers - Training nextgen technowizards and cross-disciplinarians

2   Broader Impacts

*- **Meager success:** - New useful tool - New body of research realted to human/animation perceptuomotor control - Education tools and strategy - **Expected outcomes:** - Support and sustain the growing community of 'freemocap' users, loosely organized around a shared love of the measurement, investigation, analysis, and expression of human and animal movement (broadly construed) - Sustainable organization and vibrant ecosystem existing as a proof-of-concept alternative organizational approach to broadscale academic research, education, and training - **Idealist future:** - Iterative solutions on 'project-scale' strategy produces a vibrant **ecosystem of ecosystems** which fundamentally changes the face of education and scientific research.*

3   Objectives

- Technical Objectives - CI/CD - Sub-skellies - Documentation and onboarding

- Community Development - User XP tracking and educational trajectory shaping - Community support Activitites - Community grants Program - Community challenges program - - Organizational - Setting up FMC0-f - Define and support core maintainer team

4 Current Context

4.1 Technological Context

4.2 Social Context

4.3 Ethical Context

4.3.1 The Problem of Universities

4.3.2 The Problem of Journals

4.3.3 On Gardens and Cottage Industries

4.4 Need and Gap

5 Objectives and Long term vision

5.1 Aspirational Goals

5.1.1 FreeMoCap =¿ Best MoCap (monotonically increasing performance)

5.1.2 All-levels accessible (universal access)

5.1.3 Covert Education

5.1.4 Generative Organzational Structure

6 Guiding Principles

6.1 Universal Design / Universal Access

6.2 No artificial scarcity

6.3 Community Focus

6.4 Aggressively Open Source

7 The FreeMoCap Project (FMC)

7.1 Artifacts

7.1.1 FreeMoCap Softwares

FreeMoCap Core Software (FMC-Core)

Sub-Skelly Softwares

8   Planned Activitites and Objectives

Tests.

Validation.

Diagnostics.

8.5   Sustainability

8.5.1   Goals and Metrics

Community Growth.

Organizational Stability.

Software Performance.

Revenue streams.

8.6   Security and Privacy

8.7   Security

8.8   Privacy