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Respondent

42 Anonymous

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### Application Information

1. Name: \*

Tim Papienski

2. GCC Title/Position: \*

Adjunct Professor, Architecture

3. Department: \*

Architecture

4. Campus: \*

Verdugo

Garfield

5. E-mail: \*

tpapiens@glendale.edu

6. Phone: \*

818-519-0500

7. Dean or Department Head's Name: \*

Andrew Feldman

### Project Proposal

8. Name of Project/Program: \*

Monarch Neuro Student Research and Validation Initiative

9. Please select which category best describes your project: \*

- Arts & Culture
- Athletics & Fitness
- Career & Work Training
- College Operations & Facilities
- Humanities/Social Sciences
- Science & Technology

10. Amount requested: \*

6000

11. What do you propose to do? \*

Last year, I submitted a Glendale College Foundation grant proposal seeking support to explore a new concept involving brain-computer interfaces and group neuroscience. Although that proposal was not funded, the application process served as a catalyst for a vision that led to a year-long independent development effort.

Over the past year, I designed, built, and tested a working platform called Monarch Neuro, a portable group-neuroscience system that uses lightweight EEG technology (wireless headsets) to measure and visualize shared attention, focus, and synchronization among groups of participants.

The platform has progressed from concept to functioning prototype. It now supports multiple interactive experiences, including a "brainwave tug-of-war" activity in which participants influence a competitive game through measured brain activity. A short demonstration video of the working prototype is included with this application below:

<https://canva.link/neuro-tug-of-war>

The purpose of this proposal is to move Monarch Neuro from prototype development into structured validation testing with Glendale Community College students.

The platform currently has two working EEG headsets and units. Grant funding will support the construction of twelve additional portable EEG research units and a series of supervised student studies designed to evaluate the educational, technical, and research potential of the platform.

Students will participate in experiential learning activities involving teamwork, attention, decision-making, media engagement, audience response, and human-computer interaction. The project seeks to determine whether meaningful patterns of group attention and synchronization can be measured and transformed into useful educational and research tools.

This proposal represents the next logical phase of development: moving from building the technology to evaluating its effectiveness through direct student participation and structured research activities.

## 12. Who will be involved in the project/program? \*

The project will be led by Adjunct Professor Tim Papienski and will involve Glendale Community College student volunteers recruited from a variety of academic disciplines, including:

- Computer Science
- Engineering
- Psychology
- Media Arts
- Business
- Communication Studies
- Other interested disciplines

Students will participate as research subjects and collaborators throughout the project.

Participants will gain firsthand experience with:

- Experimental design
- Data collection and analysis
- Human-computer interaction
- Brain-computer interface technology
- User experience research
- Emerging wearable technologies
- Ethical considerations surrounding neuroscience technologies

Students may also assist with observation, documentation, testing procedures, and interpretation of study results.

## 13. What are the benefits of this project/program to the students, college, and the community? \*

## Benefits to Students

This project provides students with a rare opportunity to participate directly in the evaluation of an emerging technology platform rather than simply studying established technologies.

Students will:

- Gain hands-on experience with wearable neuroscience technology.
- Participate in authentic interdisciplinary research.
- Learn practical research and data analysis methods.
- Explore applications of technology in teamwork, communication, media engagement, and decision-making.
- Contribute to the validation of a real-world innovation currently under active development.
- Develop skills relevant to technology, research, entrepreneurship, and innovation.

The project is fundamentally experiential learning. Students will actively participate in designing, testing, observing, and evaluating technology rather than learning solely through lecture or simulation.

## Benefits to Glendale Community College

The project supports GCC's commitment to innovation, student engagement, and experiential learning.

It will:

- Create interdisciplinary learning opportunities.
- Provide a unique student research experience.
- Showcase GCC's involvement with emerging technologies.
- Create opportunities for future grant proposals and external partnerships.
- Support faculty-led research involving student participation.

## Benefits to the Community

The project promotes public understanding of neuroscience and human-centered technology while exploring practical applications in:

- Education
- Team performance
- Audience research
- Human-computer interaction
- Therapeutic engagement
- Collaborative decision-making

The project may also serve as a foundation for future partnerships between GCC and organizations interested in emerging neuroscience technologies.

14. How does this project/program support the College's Institutional Strategic Plan? \*

View ISP at <https://www.glendale.edu/home/showpublisheddocument/68172>

The Monarch Neuro Student Research and Validation Initiative directly supports Glendale Community College's 2025–2030 Institutional Strategic Plan by advancing the College's priorities of **\*\*Inclusion, Success, and Support\*\***. Students from multiple disciplines will participate in hands-on, interdisciplinary research involving neuroscience, human-computer interaction, data analysis, and emerging technologies. The project provides authentic experiential learning opportunities that promote student engagement, innovation, and collaboration while supporting GCC's mission to empower students to achieve their educational, career, and life goals.

The project aligns particularly well with **\*\*Priority B.7\*\***, which calls for the implementation of emerging instructional technologies to improve student success equitably. Monarch Neuro gives students direct experience with a working brain-computer interface platform while exploring innovative applications of technology in teamwork, communication, audience research, and human-centered design.

The platform also reflects GCC's commitment to equity and inclusion. Monarch Neuro collects anonymous physiological data and aggregates participant contributions equally, reducing many of the biases that can arise from self-reporting, language barriers, social dynamics, or demographic differences. By focusing on shared patterns of attention and engagement rather than individual identities, the project explores a uniquely inclusive approach to understanding group experiences and participation.

15. Timeline for the project/program. \*

Summer 2026

- Purchase equipment and materials.
- Assemble twelve portable EEG research units.
- Finalize testing protocols and participant materials.

Fall 2026

- Recruit GCC student participants.
- Conduct pilot studies and classroom demonstrations.
- Refine procedures based on participant feedback.

Spring 2027

- Conduct expanded field studies involving larger participant groups.
- Collect and analyze data.
- Evaluate educational and technical outcomes.

Late Spring 2027

- Prepare final report and findings.
- Present demonstrations and results.
- Develop recommendations for future educational and research applications.

16. How do you propose to use the funds requested? Please include specific budget information. \*

The requested funds will be used exclusively to construct twelve additional EEG headset units and support field-testing activities involving GCC students.

12 Muse EEG Headsets  
\$3,000

12 Raspberry Pi Computers  
\$840

12 sets of batteries, cables, and supporting electronics  
\$1,260

3D Printing Filament and Fabrication Materials  
\$300

Student Refreshments During Testing Sessions  
\$300

Replacement Parts and Project Contingency  
\$300

Total Requested  
\$6,000

17. Please list any other sources of funding you have applied for and include dollar amounts if already awarded. \*

None

18. How will the Foundation's support be recognized? \*

The Glendale College Foundation will be recognized in project presentations, demonstrations, reports, educational materials, and public discussions related to the project.

Whenever the Monarch Neuro platform is presented or demonstrated as part of project activities, acknowledgment will be made that the student research initiative was supported by the Glendale College Foundation.

Any future publications, presentations, or research summaries resulting from this project will also recognize Foundation support.

19. How do you plan to evaluate this project's success? \*

Success will be measured using both educational and technical outcomes.

Evaluation criteria include:

Successful construction and deployment of twelve research units.

Number and diversity of participating GCC students.

Completion of planned testing sessions.

Reliability and quality of collected data.

Student engagement and participant feedback.

Identification of measurable patterns of group attention and synchronization.

Determination of whether the Monarch Neuro platform demonstrates sufficient educational and research value to justify larger-scale studies.

Importantly, this project is designed as a validation effort. The goal is to evaluate the platform through direct observation and data collection and determine its strengths, limitations, and future potential.

20. If your project/program is successful, how will it inform your practice moving forward? \*

The findings will guide future curriculum development, interdisciplinary collaborations, and applied research opportunities involving GCC students.

The project will help determine whether Monarch Neuro should continue evolving as an educational and research platform and whether larger studies should be pursued through external grants, institutional partnerships, or additional student research initiatives.

Successful results would support future opportunities for GCC students to participate in cutting-edge research involving neuroscience, technology, and human-centered design.

Equally valuable would be identifying limitations and challenges that help refine future directions and improve subsequent research efforts.

21. Please provide a 2 – 3 sentence summary of your project proposal. \*

Monarch Neuro is a working, group-neuroscience platform that uses lightweight EEG technology to visualize shared attention, focus, and synchronization among groups of participants. Building on a prototype developed during the past year, this project will fund twelve portable research units and a series of field studies involving Glendale Community College students to evaluate the platform's educational and research potential through hands-on experiential learning. Students will participate directly in interdisciplinary research at the intersection of neuroscience, technology, human-computer interaction, and innovation.

## Signature and Acknowledgments

22. I hereby acknowledge/certify: \*

- My Dean or department head is aware of this application and has authorized its submission.
- If my proposal involves the hiring of temporary/contracted professionals, I will obtain approval from Human Resources before proceeding and will provide documentation to the Foundation that the hiring/contracting has been reviewed and approved.
- If my proposal involves conference and/or other travel, I will complete the GCC travel approval process and adhere to GCC travel guidelines.