NAE GRAND CHALLENGES

A Spotlight to the Spring 2024 ECE Senior Design I Winners

The 5 Competencies

<u>Talent</u> - A creative learning experience Such as research or design projects

<u>Interdisciplinary</u> - Authentic experiential learning in fields such as public policy, business, law, medicine, ethics, and communications

<u>Global and Cross-cultural</u> -Experiences that promote involvement with globally complex issues in unfamiliar environments

Entrepreneurship - Innovation experience such as the start-up of a new venture, dissemination of technology, or coursework in entrepreneurship

<u>Social Consciousness</u> - Problembased community projects that foster an appreciation of the impact of Engineering and its role in serving human welfare and the needs of society



NAE Grand Challenges

The National Academy of Engineering Grand Challenges goal is to educate a new generation of engineers expressly equipped to meet societal challenges identified through national initiatives. It is a program where students involved will have expertise in one or more of areas and exposure or experience in others, providing opportunities for them to reflect on how such combined capabilities can empower them to become leaders in addressing societal challenges in the U.S. and abroad. Essentially, the Grand Challenges is a source of inspiration for drawing a generation to the call of improving the human condition, as a driver for our national and world economies, to U.S. and global security, sustainability, health, and joy of living in the decades ahead. The Grand Challenges program is based on 5 competencies: Talent, Interdisciplinary, Global / Cross-cultural, Entrepreneurship, and Social Consciousness. By Michael Wroe - Chair of Grand Challenges Working Group

14 Game-changing goals

- 1. Advanced personalized learning
- 2. Make solar energy economical
- 3. Enhance virtual reality
- 4. Reverse-engineer the brain
- 5. Engineer better medicine
- 6. Advanced health informatics
- 7. Restore and improve urban infrastructure
- 8. Secure cyberspace
- 9. Provide access to clean water
- 10. Provide energy from fusion
- 11. Prevent nuclear terror
- 12. Manage the nitrogen cycle
- 13. Develop carbon sequestration methods
- 14. Engineer the tools of scientific discovery

Electrical and Computer Engineering (ECE) students in Senior Design I and II compete in the Grand Challenges program based on their projects. The winning team receives a certificate and plaque along with the recognition of winning the Grand Challenges within their class.

Spring 2024 Grand Challenges Winning Team

Depicted in the photo above and below are the winning team members from the Spring 2024 Senior Design I class. The team members are Luke Whitehead, Mario Salinas, Lara Altaweel, Rohail Kazmi, and Fatima Tahir. Their Senior Design project is Nitinol-based Artificial Muscle Actuators.

