



# FLORIDA ATLANTIC WAVE COMPETITION AWARDS CEREMONY



**April 16, 2025**

# WELCOME

Florida Atlantic Wave is an applied research and entrepreneurial competition where students create innovative solutions and compete for a cash prize. Wave is in its tenth year, supported 276 students, who have won over 183K in external cash prizes.

We are grateful to The Runway at Florida Atlantic under the Division of Research for supporting seed funding for these amazing student projects.

We would like to thank our generous donor Dr. Eric H. Shaw for his commitment to supporting student development and innovation and for sponsoring the \$2,000 Dr. Eric H. Shaw Florida Atlantic Wave Excellence in Innovation Award.

We would also like to thank our collaborators at Palm Beach State College for supporting student engagement in the Wave program and for sponsoring the Palm Beach State track cash prize.

We would like to thank the Office of Government Relations for supporting the Community Engagement cash prize.

Now let's take a look at these impressive student projects!



# SUCCESS

## SUCCESS TO DATE



Updated as of March 2025

# SPOTLIGHT

## FLORIDA ATLANTIC WAVE ALUMNA SPOTLIGHT

Princesses Against Cancer (PAC) started with founder Elizabeth Pino's first hand experience with the difficult choices families of children battling cancer make—choosing between giving their child a magical experience or maintaining financial stability. While working for a princess party company that charged families in hospitals for character visits, Elizabeth realized no family should have to pay for moments of joy during such challenging times. From that moment, she vowed to provide free magical experiences to these children, allowing them to enjoy a piece of normal childhood without the financial burden.

Elizabeth first learned about the Florida Atlantic Wave Program through one of her professors and saw it as a valuable opportunity to expand PAC's reach and impact. The boot camp experience pushed PAC to refine its processes, establish meaningful partnerships, and transition from a passion project into an official nonprofit hosting events worldwide. Elizabeth was also a scholar of the Kenan Social Engagement Program, based out of the Harriet L. Wilkes Honors College which helped propel her nonprofit forward.

Today, PAC has built relationships with over 100 hospitals and organizations dedicated to supporting children facing difficult times. With multiple chapters in Florida and across the United States, PAC has also expanded its reach globally through virtual visits, ensuring that no child—no matter where they are—misses out on the magic all possible thanks to the guidance of the Wave Program and FAU's innovation ecosystem.





# TEAM PROJECTS

(alphabetical by project title)

## Blue Impact: Transforming Teenage Lives Through the Power of the Ocean

### Student:

Neta Froimovich

### Project:

Occupying 71% of Earth, the ocean plays a critical role in humanity's survival and in our daily lives. However, many underprivileged teenagers lack exposure to marine knowledge and activities. Blue Impact is a program, in collaboration with the Boca Raton YMCA, dedicated to helping disadvantaged adolescents learn about marine life, teach them about the pollution of the ocean, and provide trips to the ocean for real life interaction through lessons with research-based findings, beach cleanups and snorkeling trips. Founded by a scuba diver, BlueImpact's mission is to share passion for the water and help spread awareness of the current state of Earth's marine underworld.

Beyond fostering a deeper appreciation for the ocean, Blue Impact aims to empower economically distressed teenagers to become advocates for a cleaner, healthier planet.

## BookSwipe

### Students:

Sofia Martinez and Sharada Iyer

### Mentors:

Dr. Hari Kalva and Vishal Arvin Vinayaga

### Project:

Since the pandemic, reading has gained popularity amongst many through prominent social media platforms. These media forms have made it easy for books of diverse genres to reach people globally. Many reading platforms, such as Goodreads, provide book-related services but do not focus on personalized recommendations. Existing recommendation systems are often inaccurate and prioritize books that other readers have enjoyed or bestsellers rather than the personalized and specific interests of the user, leading to an unfulfilling reading experience.

Bookswipe is an AI-powered website that utilizes the user's input to streamline the discovery of personalized reading experiences. This interface provides precise book recommendations to users, so individuals save time searching for literary content to maximize their reading enjoyment. As part of our social impact mission, we donate 10% of proceeds to literacy programs, helping to expand access to books and promote a love of reading worldwide.



## **CANE-KEEP'R: A Simple and Reliable Solution for Safer, More Accessible Cane Placement**

### **Student:**

Damien McKinney

### **Project:**

The CANE-KEEP'R is a lightweight and user-friendly safety accessory designed to help individuals who use canes or crutches. This clip-on device allows canes to rest securely on a desk or counter edge, preventing them from slipping and falling. Made from biodegradable, low-cost materials, the CANE-KEEP'R is both eco-friendly and practical. Its simple design makes it easy to attach and remove, even for users with limited hand strength or dexterity.

The CANE-KEEP'R reduces the risk of canes falling and creating unsafe situations, especially for individuals who may have difficulty retrieving them. Its compact size ensures it stays out of the way while still providing stability. Unlike other products, the CANE-KEEP'R focuses on ease of use, safety, and sustainability, making it an ideal everyday mobility aid for cane users.

## **Clean Haven**

### **Students:**

Michael Pedro and Juan Jaramillo

### **Mentor:**

Dr. Christopher Strain and Dr. Timothy Steigenga

### **Project:**

Clean Haven is a social venture that combats both hygienic poverty and environmental sustainability. Our product is a premium, eco-friendly body wash that follows a "buy five, donate one" business model. Clean Haven ensures that for every five products sold, one is donated to individuals experiencing homelessness. The company's main product features a minimalistic design, with a refillable bottle system aimed at reducing single-use plastic waste.

In partnership with The Lord's Place, a nonprofit dedicated to breaking the cycle of homelessness in Palm Beach County, Clean Haven will create the first refill stations for use by their clients. Through our target market of socially responsible and eco-friendly consumers, Clean Haven seeks to create a lasting impact by improving hygiene for those in need while reducing plastic production and waste.

## ClosetGenius

### Student:

Bianca Gambino

### Project:

ClosetGenius is a virtual assistant application revolutionizing wardrobe management by tackling textile waste head-on. Using advanced AI and image training technology, it instantly recognizes, categorizes, and tracks clothing with greater accuracy than other apps. Simply upload a photo, and ClosetGenius' AI labels clothing, then suggests outfits based on the user's style, the weather, and upcoming occasions. By optimizing what a person already owns, ClosetGenius helps reduce overconsumption and keeps wardrobes organized.

Fast fashion leads to millions of tons of discarded clothing each year. ClosetGenius fights this waste by making it easier to trade, sell, or donate items, ensuring clothes stay in circulation instead of ending up in landfills. Whether a person loves fashion or just wants a more sustainable lifestyle, ClosetGenius helps reduce waste and make smarter wardrobe decisions—all while promoting a circular fashion economy that benefits both the user and the planet.

## FamiliarU: Assistive AI Device for Prosopagnosia

### Student:

Ashley Rotton

### Mentor:

Dr. Jason Hallstrom

### Project:

Prosopagnosia, or face blindness, affects about 3% of the U.S. population, meaning 10 million people struggle to recognize faces. FamiliarU is a wearable device using AI-driven facial recognition to assist individuals in identifying people in real time. Inspired by firsthand experiences with prosopagnosia, this project aims to enhance independence and confidence for those also affected. The device is designed as smart glasses equipped with a camera and speakers, discreetly alerting users to whom they are speaking with.

FamiliarU provides a privacy-focused solution, offering real-time recognition without storing sensitive images. Unlike existing technologies, which focus on general AR applications, FamiliarU is tailored specifically for accessibility, filling a gap in assistive technology. While tech giants like Google could integrate similar features into vision-based products, no dedicated and affordable solution currently exists. FamiliarU's lightweight design and AI-powered facial embeddings ensure an intuitive, cost-effective alternative, bridging the gap between AI and real-world accessibility.

## Guardian: The Integrated Fall- Detection Safety Device

### Students:

Pedro Gabriel Mantese Masegosa, María Calvo Fernández,  
Luis Manzanera Rodríguez

### Project:

Falls among seniors in the U.S. result in over 32,000 deaths and 3 million injuries annually, imposing significant emotional and financial burdens. Seniors using walkers are particularly at risk due to mobility issues.

Guardian addresses this with a compact device that attaches to walkers. Its advanced sensing technology reliably detects falls, instantly alerting caregivers with precise location details.

Unlike other fall-detection solutions, Guardian offers a unique approach. LifeAlert uses pendants that can be cumbersome and stigmatizing, while the Dring smart cane integrates fall detection but doesn't accommodate walkers. In contrast, Guardian attaches discreetly to existing walkers, integrating seamlessly to ensure continuous monitoring without disrupting daily routines and addresses common concerns that often deter seniors from using fall-detection systems.

Additionally, it offers senior care organizations and insurance companies a solution to reduce healthcare costs and improve quality of life while paving the way for future service-based enhancements.

## Med to Med - Mentorship for Future Physicians

### Student:

Isabelle Solages

### Project:

There is a critical disparity in the field of healthcare, as minorities—particularly Black and Hispanic populations—are underrepresented. This disparity is pronounced among physicians, with 5% being Black and 5.8% Hispanic. Without early guidance most young students are not able to see medicine as a feasible career choice.

Med to Med is a social enterprise committed to bridging this gap by mentoring underrepresented high school students interested in healthcare. Through in-person workshops and structured mentorship, students are matched with mentors to provide advice, and resources to navigate the complex journey towards a healthcare career. This program builds a sustainable pipeline of future medical professionals dedicated to serving their communities. Med to Med is committed to breaking down barriers, promoting representation, and ensuring that the next generation of healthcare leaders is as diverse as the communities they lead.



## OrthoGenetic

### Student:

Priscilla Xu

### Mentor:

Dr. Waseem Asghar

### Project:

Surgical failures in spinal implant procedures mainly emerge post operation. Only 50% of primary spinal surgeries typically succeed—a figure that halves with each revision. Current clinical intervention fails to meet patient needs or support long-term recovery goals, highlighting a critical gap in orthopedic care.

Orthogenetic leverages genomic data and biosensor technology to give real-time biofeedback to articulate a self-monitoring implant to optimize surgical outcomes and minimize post-operative complications. This innovation aims to shift spinal surgeries from a one-size-fits-all approach to a patient-specific based model.

Further applications of OrthoGenetic seek to empower clinicians to predict implant success, customize recovery strategies, and reduce reliance on high-cost imaging for recovery assessment. As traction for personalized medicine gains in popularity, this solution presents a transformative opportunity to lower healthcare costs while enhancing quality of life.

## PitchSense AI

### Student:

Brett Greenberg

### Mentor:

Dr. William Hahn

### Project:

Pitcher injuries pose a significant challenge in baseball, often leading to lost playing time and diminished performance. This research project aims to develop a predictive model for pitcher injuries by integrating computer vision and biomechanics analysis with an advanced injury prediction algorithm. The system utilizes video footage of pitchers, processed through a computer vision model to extract key kinematic features such as arm angle, shoulder rotation, and elbow torque. These biomechanical metrics are then analyzed using machine learning models trained on historical injury data to identify potential risk factors. By combining real-time motion tracking with predictive analytics, this approach seeks to detect mechanical inefficiencies and early warning signs of injury.

The goal is to provide teams with actionable insights to modify workloads, adjust mechanics, and reduce injury risk. This research offers a data-driven solution for injury prevention, potentially revolutionizing how teams monitor and protect their pitchers.

## Sign and Shine Community Center

### Students:

Kassandra J. Liburd

### Mentor:

Regina Thompson

### Project:

Sign and Shine is a community program designed to uplift and empower our Deaf and Hard of Hearing (DHH) children in local communities. The program aims to offer a safe space for youth development with a peer-mentorship program targeted towards DHH students from grades K-12. These students will be paired with one another to increase interaction with other DHH individuals across academic levels.

Sign and Shine will build a community by offering American Sign Language courses for friends and families of DHH children while also providing vocational training for medical professionals, educators, and lawyers. We will also spread awareness by hosting community events and providing resources and support for all ages. By providing an inclusive environment where children are seen as more than their disability, Sign and Shine will provide DHH children the opportunity to grow and thrive successfully.

## Synthetic Data Creation Using AIS

### Student:

Ayan Sanallah

### Project:

SynthData specializes in the generation of high-quality synthetic data for AI model training, testing, and privacy-preserving analytics. With the increasing demand for large, diverse, and bias-free datasets, SynthData provides a scalable solution that eliminates privacy concerns while maintaining statistical integrity. By leveraging advanced generative models and domain-specific simulations, SynthData ensures that businesses and researchers can access realistic data without regulatory or ethical constraints.

Operating at the intersection of artificial intelligence and data science, SynthData empowers industries such as healthcare, finance, and autonomous systems by delivering synthetic datasets tailored to their unique needs. Our approach enhances machine learning performance, reduces dependency on real-world data collection, and mitigates biases in AI models. As data privacy regulations tighten, SynthData positions itself as a key player in the future of AI-driven decision-making, providing a secure, cost-effective, and legally compliant alternative to traditional data sourcing.

# **Uplift: Universal Portable Lifting Integrated Facility Tool**

## **Students:**

Aranxa Angola Duque, Gabriella Posada, Joseph Salera, Joseph Thomas, Kevin Salva, Kevin Teeling, Leilani Thuraisingham

## **Mentor:**

Dr. Oscar Curet

## **Project:**

Millions of individuals with mobility challenges face barriers to independence and accessibility daily. Uplift introduces a portable, collapsible patient lift designed to enhance freedom and reduce physical strain for users and caregivers alike. Attached to the back of an electric wheelchair, the lift supports up to 300 pounds, operates via remote control, and is powered by an independent battery system.

The design features a lightweight aluminum base with a slewing mechanism, a telescopic mast for vertical adjustment, and a fixed arm equipped with a winch for safe lifting and lowering. Compact and transportable, it adapts to diverse environments, including homes, clinics and otherwise inaccessible public areas.

Compared to traditional lifts, this system offers unmatched portability, ease of use, and independence. By addressing key limitations of existing solutions, Uplift advances inclusivity and empowers users to navigate life with ease and confidence.

# **Titan Secure**

## **Student:**

Ashley J. George

## **Mentor:**

Dr. Brooke Coslett

## **Project:**

In recent years, Florida has experienced an increase in tornadoes forming within hurricanes, with roof failure being one of the most common causes of destruction. In response to this growing concern, a hurricane-resistant roof anchoring system has been developed to enhance the structural stability of manufactured homes during extreme wind events.

With this system, homeowners can engage three to four high-tensile straps when high winds are expected, reinforcing the roof and reducing the risk of uplift and total structural failure. These straps extend from concrete anchors buried within the ground on one side of the home, passes over the roof and connects to anchors on the opposite side.

This design provides a cost-effective, easy-to-install, and removable protection system that does not require extensive structural modifications. It has the potential to minimize property loss, improve safety for residents, and assist insurers and emergency response teams in mitigating disaster impacts.





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