Company: Smartbarrel Miami FL
Company Description: SmartBarrel is a leading construction technology company based in Miami, Florida. Founded in 2019, the company delivers innovative workforce management solutions designed specifically for the construction industry. SmartBarrel's platform combines AI-powered tools, IoT devices, and mobile-first software to help contractors track labor, ensure compliance, and improve jobsite productivity.
Nomination Category: Individual Awards Categories
Nomination Sub Category: Woman Scientist of the Year
Nomination Title: Yuliia Horbenko – Software Engineer and Scientist Advancing Secure AI-Powered Front-End Systems

1. Briefly describe the nominated individual: history and past performance (up to 200 words):

    Total 198 words used.

    Yuliia Horbenko is a Ukrainian-born software engineer, researcher, and technology leader known for advancing secure, AI-powered front-end systems. She graduated with honors and a Presidential Scholarship from the National Transport University, earning bachelor's and master's degrees in Management Information Systems.

    Her career began with Diia, Ukraine's national digital government platform serving more than 18 million citizens. There she developed secure, scalable front-end components for IDs, vaccine records, and public services, helping establish Diia as a global model of e-government. She later worked internationally across Europe, Asia, and the U.S., including SolarReviews, where she modernized solar comparison tools for 80,000+ daily users, improving speed, accessibility, and decision-making for renewable energy adoption.

    Today, as Senior Front-End Developer at SmartBarrel, she leads the design of AI-driven time-tracking and compliance dashboards used on construction sites across North America, integrating features that enhance payroll accuracy, reporting, and worker safety.

    Beyond industry, Yuliia has authored five peer-reviewed publications on blockchain, AI, and Zero Trust security, cited globally within just two years. A Senior IEEE Member, Bronze Stevie® Award winner, and Globee® Awards Judge, she has also been featured in MSN, Focus, Today.ua, and TechBullion for her leadership in ethical, human-centered technology.

2. Outline the nominee's achievements since July 1 2023 that you wish to bring to the judges' attention (up to 250 words):

    Total 241 words used.

    Since July 2023, Yuliia Horbenko has made significant scientific contributions to the study of secure, resilient front-end systems. She has authored five peer-reviewed papers that advance knowledge at the intersection of cybersecurity, AI, and blockchain:

    - *Web Assembly and Blockchain for High-Performance Secure Front-End Systems* (IJCSRR, 2025) – introducing scalable blockchain-enabled dApps.

    - *Confidential Computing in Front-End: Enhancing Data Security with Secure Enclaves and Homomorphic Encryption* (2024) – pioneering privacy-preserving computation in UIs.

    - *AI-Powered UI Adaptation and Data Automation in Secure Front-End Systems* (2024) – advancing intelligent, adaptive front-end architectures.

    - *Secure Front-End Automation Framework: A Novel Approach to Client-Side Data Encryption and Zero Trust API Interaction* (2024) – establishing a new model of Zero Trust at the UI layer.

    - *Self-Healing Front-End Systems: AI-Driven Anomaly Detection and Automated Recovery* (2024) – presenting adaptive, fault-tolerant designs for mission-critical platforms.

    Her research has been cited 47 times (Google Scholar), with an h-index of 4 and i10-index of 4, demonstrating growing global recognition in a short period.

    Alongside her academic work, Yuliia applies her findings in industry at SmartBarrel (USA), where she leads the front-end engineering of AI-driven compliance systems for construction sites. Features such as real-time PPE detection and secure data validation showcase her ability to translate scientific research into practical safety solutions.

    Her combined impact has been recognized with elevation to IEEE Senior Member, a Bronze Stevie® Award for Technology Innovation (2025), and her role as judge for the 2024 Globee® Awards in AI innovation.

3. Reference any attachments of supporting materials throughout this nomination and how they provide evidence of the claims you have made in this nomination (up to 250 words):

    Total 92 words used.

    Supporting materials are provided to validate the nominee's achievements. These include her peer-reviewed publications and citation record, which demonstrate scientific impact in secure front-end systems and AI. Certificates confirm her elevation to IEEE Senior Member, a Bronze Stevie® Award for Technology Innovation, and her role as a judge for the Globee® Awards. Media coverage from MSN, Today.ua, Focus, and TechBullion highlight her global recognition, while conference presentations and recommendation letters further verify her leadership and innovation. Together, these materials offer clear evidence of the nominee's influence in both science and industry.

4. Which will you submit for your nomination in this category, a video of up to five (5) minutes, explaining the achievements since July 1, 2023 of the nominated woman, OR written answers to the questions? (Choose one):

    Written answers to the questions

5. If you are submitting a video of up to five (5) minutes in length, provide the URL of the video here, OR attach it to your entry via the "Add Attachments, Videos, or Links to This Entry" link above, through which you may also upload a copy of your video. If you are submitting written answers to the questions for this category, provide them in the spaces below:

    I am a software engineer and researcher who has spent the past six years building secure, AI-powered front-end systems. Since July 2023, my focus has been on combining practical engineering with scientific research to make technology safer, more resilient, and more human-centered.

    At SmartBarrel in the U.S., I led the design of an AI-powered interface for real-time PPE detection, helping construction companies improve jobsite safety and compliance. I also introduced a Zero Trust front-end architecture to protect sensitive worker data and ensure reliability in challenging field conditions. At SolarReviews, I optimized solar calculators and comparison tools, cutting load times by 20% and improving accessibility for thousands of homeowners choosing renewable energy. Earlier, I contributed to Ukraine's Diia digital government platform, building secure and responsive components that millions of citizens rely on for IDs, tax filing, and essential public services.

    Alongside industry work, I've contributed to scientific research, publishing five peer-reviewed papers on topics such as self-healing front-end systems, Zero Trust UI security, and blockchain audit trails. My research has already been cited globally, and I've shared my findings at conferences in India and China.

    In 2024, I was selected as a judge for the Globee® Awards in Artificial Intelligence, where I evaluated high-impact projects such as Babylon Health's diagnostic assistant, UiPath's automation platform, and NLP-based enterprise solutions from Cognigy and Kore.ai. My contributions have also been recognized with a Bronze Stevie® Award for Technology Innovation (2025), elevation to IEEE Senior Member, and selection as a reviewer for the SME Education Foundation Scholarship program. My work has been featured in MSN News, TechBullion, Today.ua, and Focus, where I've shared insights on ethical AI and secure front-end design.

    Through both practice and research, my goal is simple: to create software that people can trust. Whether improving safety on construction sites, advancing renewable energy adoption, or strengthening national digital platforms, I believe technology must always serve people first — securely, ethically, and reliably.

6. Explain why the achievements you have highlighted are unique or significant. If possible compare the achievements to the performance of other players in your industry and/or to the nominee's past performance (up to 250 words):

    Total 230 words used.

    Yuliia Horbenko's achievements are unique because she has transformed front-end engineering—traditionally seen as a "presentation layer"—into a domain of scientific research and innovation. Few software engineers publish peer-reviewed studies while also leading industry implementation at scale.

    Since 2023, she has authored five peer-reviewed papers cited internationally (47 citations, h-index 4, i10-index 4), addressing gaps at the intersection of cybersecurity, AI, and blockchain integration in front-end systems. Unlike many peers who focus on frameworks or design trends, Yuliia pioneered:

    - Zero Trust UI security models, treating the interface as a security boundary rather than a weak point.

    - Self-healing architectures, enabling front ends to detect anomalies and recover without downtime.

    - Confidential computing and blockchain audit trails, rare topics in front-end literature.

    In practice, most companies rely on backend systems to enforce trust. By contrast, Yuliia has proven through both research and deployment that the UI itself can be proactive in ensuring compliance, privacy, and safety.

    Her industry work at SmartBarrel exemplifies this shift: applying her academic models to create AI-driven time-tracking and PPE detection systems now used across North American construction sites. Few industry players in this sector deploy such advanced, research-based compliance tools.

    Recognition as a Senior IEEE Member, Bronze Stevie® Award winner (2025), and judge for the Globee® Awards in AI innovation confirms her position as a scientist whose work bridges theory and practice, raising the standards of an entire discipline.

Attachments/Videos/Links:

Yuliia Horbenko – Software Engineer and Scientist Advancing Secure AI-Powered Front-End Systems