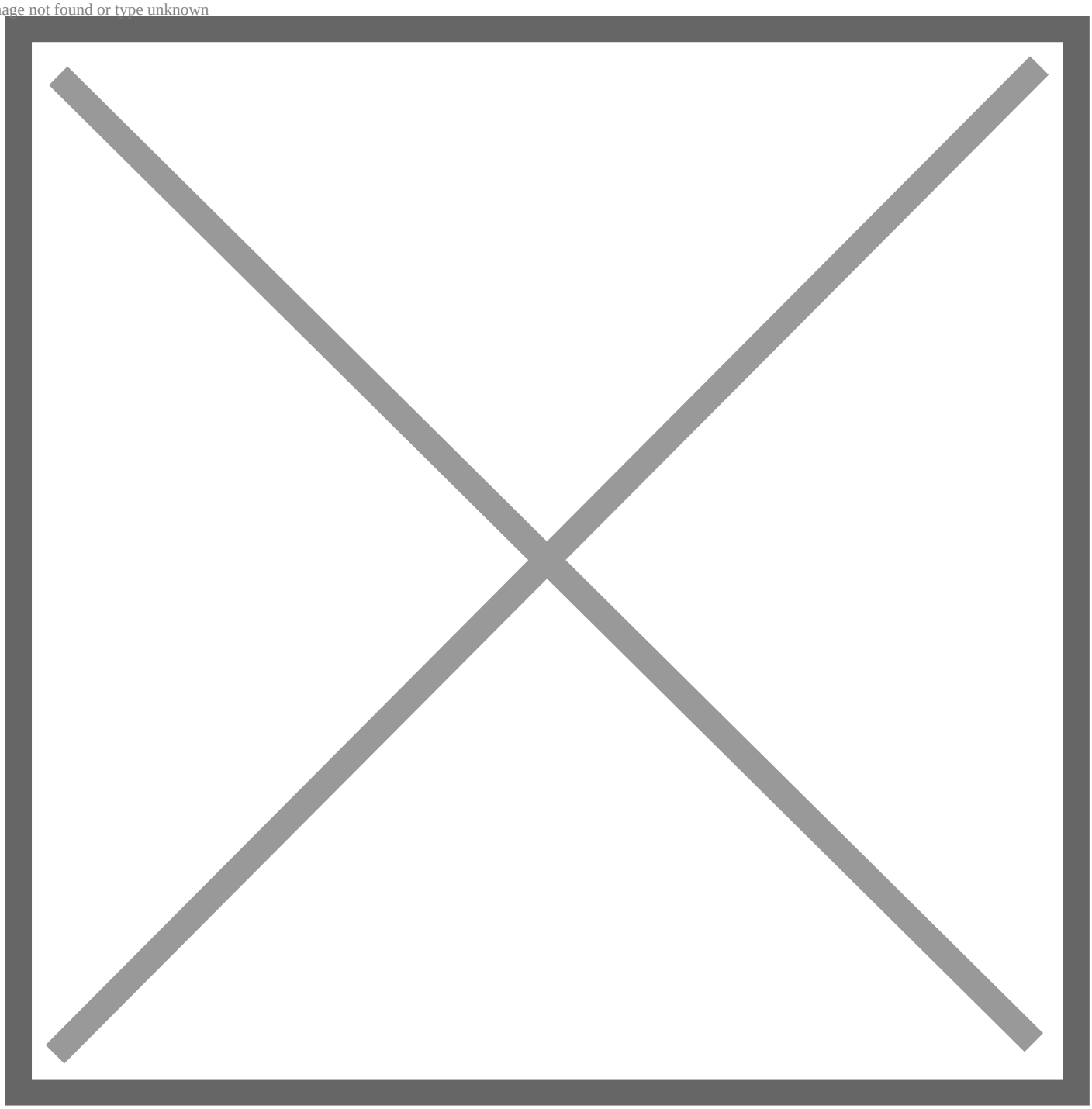
The Electrochemical Society Toyota Fellowship and the Benefit of Developing Young Investigators

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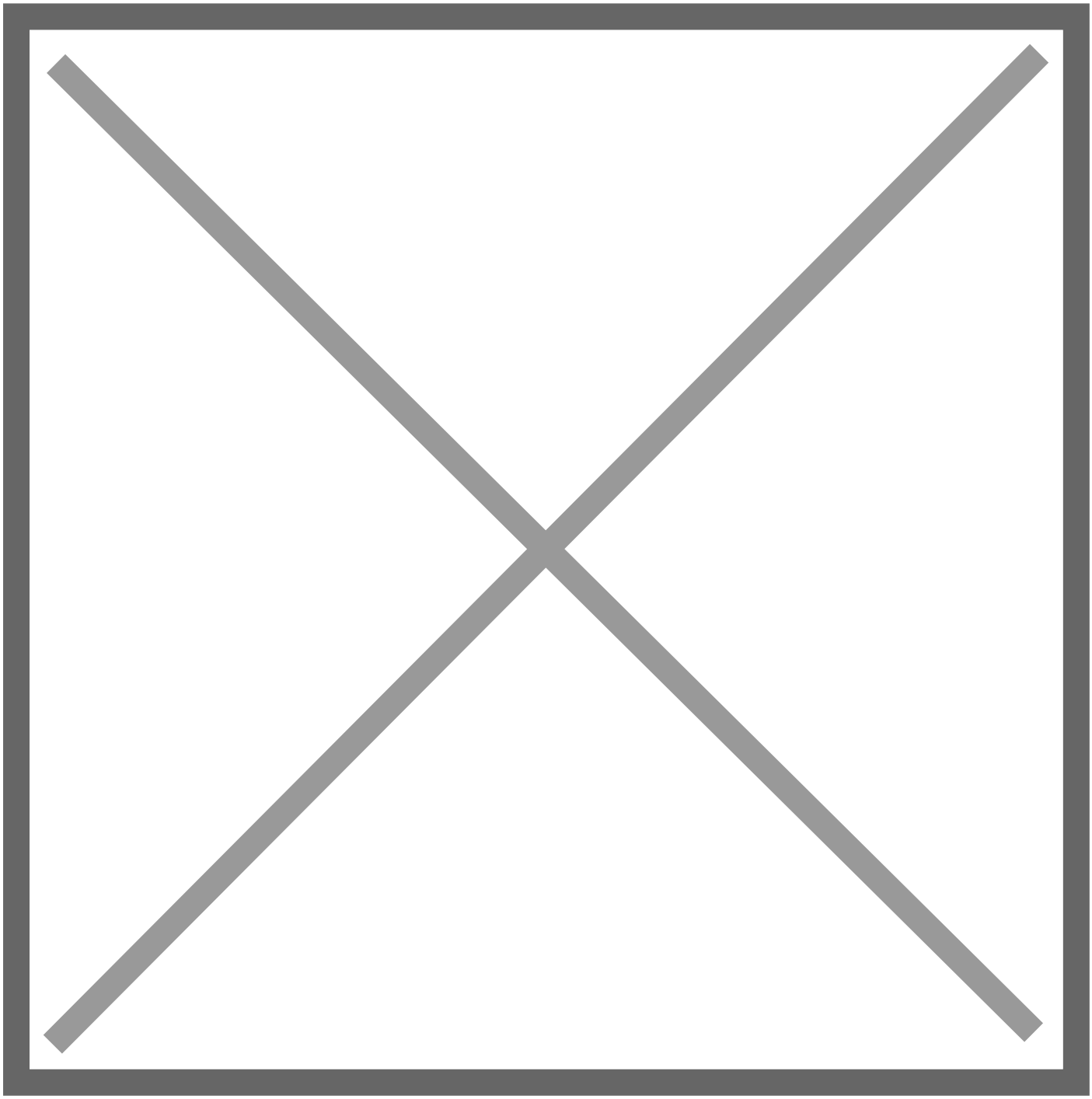


When Dr. Iryna Zenyuk first set out in 2018 to explore how fuel cells and electrolysis could help power a cleaner future, she had no idea that receiving the Electrochemical Society (ECS) Toyota Young Investigator Fellowship would set off a chain of unexpected opportunities.

The award led to years of collaboration with various Toyota entities, new research directions, supervising a PhD student from Toyota, and even welcoming a former Toyota scientist into her lab.

Her experience is just one example.

Over the past 14 years, the fellowship has launched dozens of early-career researchers, fueling bold ideas and forging lasting connections between academia and industry.



From Left: Tim Arthur, Neil Dasgupta, and Paul Fanson

The fellowship, which provides $50,000 in funding to pursue curiosity-driven science, was born at a defining moment. More than a decade ago, the electrochemistry community faced urgent challenges: how to make batteries and fuel cells more efficient, affordable, and scalable, and how to accelerate breakthroughs in clean energy.

Back then, Dr. Paul Fanson led Toyota's advanced battery research. Fanson saw an opportunity to support the next generation of innovators and expand Toyota's impact. Together with ECS, he helped create a fellowship with an "open call" model — inviting early-career researchers to tackle the toughest questions in energy storage and conversion.

"We saw it as a win-win," Dr. Fanson said. "Toyota could provide funding and industry perspective, while ECS brought a vibrant network of rising scholars."

For ECS Executive Director and CEO Chris Jannuzzi, this partnership is a natural fit:

"[The fellowship] is a shining example of what we can accomplish when we bring resources and expertise together," Jannuzzi said. "Toyota has specific research needs and resources to drive innovation, and ECS provides access to a community of up-and-coming researchers. Making this connection allows us to fund research at a scale that wouldn't be possible otherwise."

For young researchers navigating the uphill battle for recognition and resources, the fellowship makes a tangible difference in career paths.

"[It is] recognition that this is an idea and a researcher with a lot of potential," said Dr. Scott Calabrese Barton, a longtime ECS member and selection committee participant.

At a critical career stage, this validation opens doors and empowers the kind of bold thinking that can shift entire research trajectories.

At the heart of the fellowship's impact is its rare flexibility. Most early-career grants come with restrictions and guardrails, but this fellowship gives researchers complete autonomy over how they use the funds.

This freedom allowed Dr. Chibueze Amanchukwu, an assistant professor at the University of Chicago and a 2021–2022 fellow, to shift his focus from studying traditional liquid battery materials to exploring new types of polymers for solid-state batteries. This was a risky pivot that would have struggled to win traditional grant funding but has since evolved into an ongoing Toyota collaboration.

"[Without funding from the fellowship,] it's hard to see how this research area would have stayed alive within my group," Dr. Amanchukwu said.

Beyond funding and recognition, the fellowship opens doors to real-world industry connections, bridging the traditional gap between academic research and practical innovation. For many fellows, this means seeing their work through the lens of real-world impact, and sometimes even watching it move toward application in Toyota's own labs and projects.

Dr. Evan Zhao, a current fellow developing magnetic resonance spectroscopic and imaging techniques to see inside operating batteries, described how the fellowship brought Toyota research teams to visit his lab in the Netherlands. These visits sparked in-depth technical discussions and ongoing collaborations, giving Dr. Zhao and his team direct insight into the challenges driving global automotive research.

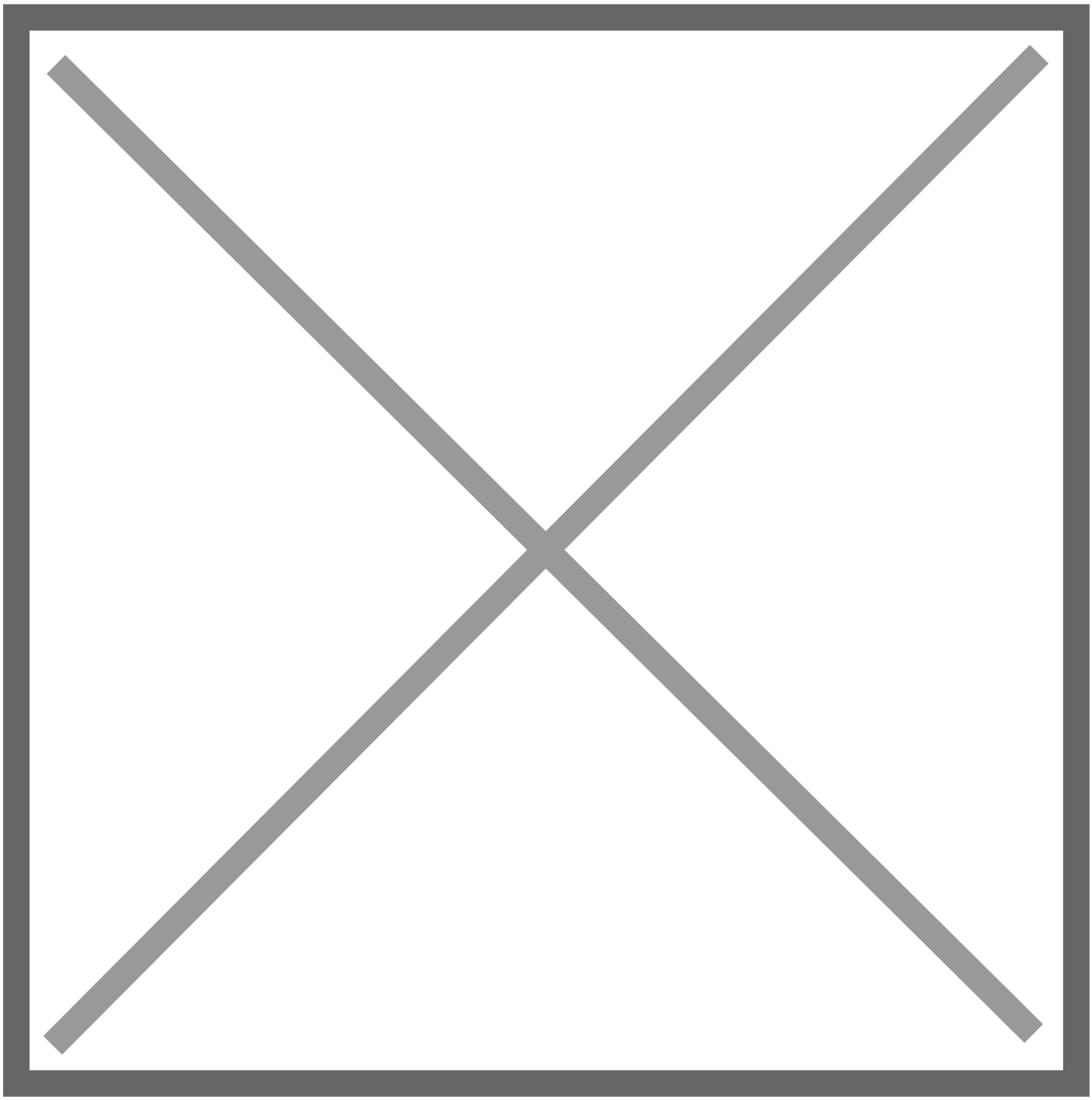
Mentorship is another defining strength of the fellowship, and few embody its spirit more than Dr. Tim Arthur, Senior Research Manager at Toyota Research Institute of North America (TRINA). Dr. Arthur is known for visiting fellows' labs in person, offering tailored career advice, and helping researchers navigate the transition from academic theory to industry practice.

“Mentorship here isn’t about micromanaging a specific project,” Dr. Arthur said. “It’s about building lasting connections and supporting the next step in a fellow’s trajectory.”

Dr. Neil Dasgupta, now an associate professor at the University of Michigan, experienced Dr. Arthur’s mentorship first-hand during his 2019–2020 fellowship.

“I honestly think that the networking and human connection side is probably the most valuable thing,” Dr. Dasgupta said.

Years after his fellowship ended, the connections he made through Dr. Arthur led to lasting collaborations, including work on electrochemical CO2 recycling with Toyota team members he first met during that time.



Many fellows complete a full-circle journey from award recipients to ECS leaders. Dr. Amanchukwu co-hosts symposia and serves on editorial committees. Dr. Zenyuk now serves as Energy Technology Division secretary and organizes the society's largest fuel cell and electrolysis symposium, and Dr. Dasgupta has served as Battery Division treasurer — positions that, within ECS, are often stepping stones toward division leadership.

In recent years, the fellowship has grown substantially. Annual proposals have quadrupled, and the applicant pool now spans the globe — from Mexico and Canada to Europe and, for the first time, Africa.

As the program grows, it continues to evolve to meet the shifting needs of the field. Once a niche discipline, electrochemistry now underpins a wide range of emerging technologies, including batteries, fuel cells, grid-scale storage, and sustainable manufacturing. The fellowship's focus has become more specific and mission-driven over time, mirroring the field's shift toward addressing challenges like electrification, sustainability, and energy security.

Yet at its core, the program remains committed to supporting breakthrough thinking and bold ideas, ensuring that the next generation of researchers is equipped to advance a field that sits at the center of the global energy transition.

Applications for the 2026–2027 cycle of the ECS Toyota Young Investigator Fellowship are open until May 22, 2026. Visit the ECS website to learn more or apply.