

Waldorf Grads Connect Through University Engineering Design Team

By Sara Anderson and Peelu Hira, with contributions from Arjun Ivimey, Jack Rossi, and Joshua Solomon

The experiential and hands-on approach embedded into the Waldorf curriculum is one of the ways a student's interest and capacity in the sciences are nurtured. Four grads from the Mulberry and Toronto Waldorf Schools have found that skills they developed at their Waldorf schools, including the ability to problem-solve, to be curious and flexible, creative and collaborative, and to develop design-oriented thinking, have been key to their post-secondary life.

Current and former engineering students at Queen's University in Kingston, Ontario, they didn't all meet through their Waldorf schools. They happened to find each other through the Queen's Baja SAE Design Team, an extracurricular opportunity for engineering students that fosters the transfer of academic knowledge to the design and manufacture of an off-road vehicle, which is then tested in annual competitions.

Baja SAE is part of the Society of Automotive Engineers International, which promotes education for the aerospace, automotive and commercial vehicle industries. The Baja competition takes place several times a year, and hosts student engineering teams that have designed and built prototypes of these rugged vehicles which are then tested in rough terrain environments. These competitions bring together hundreds of teams from universities across Canada and the U.S., as well as from many other countries.



Not afraid to get their hands dirty, Waldorf grads Joshua Solomon (bottom left), Jack Rossi, (bottom right) and Odin Solomon (top right), pose with their Baja Buggy and team members

Although Arjun Ivimey, Jack Rossi, Joshua Solomon and his brother, Odin, joined Queen's and the Baja team at different times, the Waldorf bond has been a strong point of connection. "It's not a coincidence that there have been four Waldorf graduates on the fifty-person Baja team over the past four years," says Rossi. "It is also not a coincidence that two of us have been captains, and all of us have made significant contributions to the success of the team. The hands-on skills developed in engineering design teams are the same ones that we all developed through experiential learning in our time at Waldorf," he adds, noting that a hands-on working environment is embedded into the science curriculum at Waldorf, where collaboration on labs and application of concepts are integral components of class work.

Why is this? Rossi explains, "I attribute a large part of my ability to solve complex problems quickly under pressure to my Waldorf education. Specifically, the way I was taught such a wide array of concepts at once—I feel like doing math, language, science, art, and sports all in one day gave me a large bandwidth that I needed to solve the problems that arise when designing, manufacturing, and racing off-road vehicles."

Ivimey joined Baja in 2016. Some of his more unique contributions to the project involved sewing the seat and shock covers, and making wooden boxes for tools and parts—obvious connections to the Waldorf handwork and woodwork curricula. By his third and fourth year, he would, astonishingly, "spend as much or more time on the Baja team as I did on schoolwork." He has found that "university classes cover theoretical analysis well, but often fail to connect that to the design of physical systems." He was co-captain in his fourth year when he met Rossi, who was working on one of the subsystems that Ivimey was managing.

Rossi joined the Baja team in 2019. He says, "I like solving problems and building things with my hands. The team gives students experience on what it means to develop an idea, create it, and see it perform under real-world conditions." His first project on the team was small, but he started devoting more and more time to the team, and like Ivimey, he was selected to be a co-captain in his fourth year.



A Queen's buggy in action!; Jack Rossi in the shop; Arjun Ivimey in his happy place, the machine shop.

Solomon and his brother joined the team later. He credits his experience at the Toronto Waldorf School (TWS) for giving him the inspiration and skills that led to his post-secondary path. He notes that the TWS integration of the arts taught him to develop imaginative, design and creative skills, while his Grade 12 Project, documenting the challenges of building an off-road vehicle from scratch, and his work on the STEAM/Robotics Club with Rossi, who was a few years older, were key experiences that helped him “develop the confidence to want to become an engineer.”

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This type of collaborative learning is a perfect precursor to the Baja Design Team, which “offers a more community-based learning environment, where older students mentor younger students, and team members work as part of a large group. This is different from most class and project work in university, which typically is done individually or in small groups,” says Ivimey. Solomon notes that he has felt “a deeper connection” between his Waldorf teammates. Rossi agrees; “The comradery and shared experience of Waldorf made it very easy to work with my fellow alums in this environment. The wide array of people I met at Waldorf has made it easy to work with most people, in fact.”

In addition to the inherent benefits of community-based learning and of applying engineering concepts to real world applications, what were the team's results? Out of a group of just under 100 teams, the Queen's team's vehicle scored 13th overall at the Baja SAE Tennessee Tech competition in 2022, and 20th overall at the Baja SAE Rochester competition in 2022.

It's not only Waldorf's science curriculum which helps foster capacities that match the skill set needed to be successful in engineering and other programs at the

post-secondary level. The well-rounded curriculum, including hands-on arts and crafts, like sewing, knitting, wood and metal work opportunities, are not only useful but also invaluable in the design and technology fields. The wide range and diverse set of knowledge, capacities, and skills that students develop in a Waldorf school, as well as their interest in building community, can have measurable and profound impacts far beyond high school.

And it's been great to connect with Waldorf graduates later in life. Says Joshua Solomon, “It has been very cool to work with other Waldorf grads in Baja. I have felt a certain deeper connection between these individuals, not only because I already knew some of them but also because of how we were taught before coming to Queen's.”

Arjun Ivimey, a Mulberry Waldorf School graduate, received his B.A.Sc. in 2020 and is currently completing a M.Sc. in electrical engineering while working full-time in the power electronics field.

Jack Rossi, a Toronto Waldorf School graduate from 2018, received his B.A.Sc. in mechanical engineering in 2022.

Joshua Solomon, a Toronto Waldorf School graduate from 2020, is currently studying mechanical engineering in his second year.



Sara Anderson is the High School Administrator and Alum Coordinator at TWS, and a graduate from the class of 1985. She has recently also taken on the role of director of alum relations for AWSNA. In her daily work, Anderson draws upon skills she developed at Waldorf, including creativity, imagination, and love of learning. Her three children have all attended Waldorf.



Peelu Hira is the administrative head and upper years physics teacher at Mulberry Waldorf School. She is a parent of two Waldorf graduates. Her children were what drew her and her husband to Waldorf education through the parent and child program. They believe that they have become better parents and people along their children's journey at Mulberry and are deeply invested in the school community.