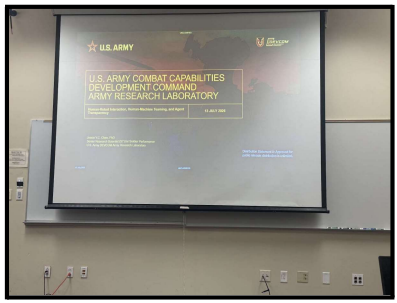
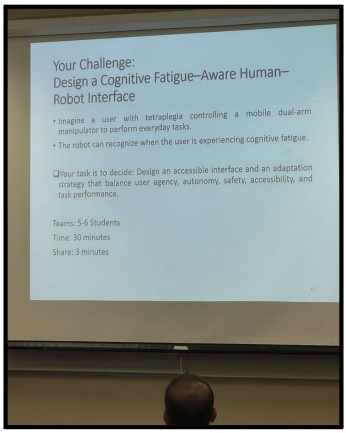
Each day had a different lineup, and each invited lecturer brought a different energy to the room.

Monday opened with **Dr. Jessie Chen from the U.S. Army Research Laboratory**, who talked about human-robot interaction, human-machine teaming, and something called agent transparency; which is basically about how much a robot should reveal about its own reasoning to the human working with it. Too little and the human doesn't trust it. Too much and the human gets overwhelmed. It sounds like a UX problem on the surface but I came to believe that it is actually deeper; what does it mean for a machine to be legible to a human?



Pictures from Dr. Chen's lecture.

Then **Prof. Maria Kyrarini from Santa Clara University** came in with a lecture on cognitive fatigue in voice-based human-robot interaction, specifically, how fatigue affects the way people interact with robots and how you design systems that actually account for that. She also gave a visual of a robot helping humans with household stuff like cooking. She didn't just lecture though. She gave the students a challenge: to design a cognitive fatigue-aware human-robot interface. An accessible interface with an adaptation strategy that balances user agency, autonomy, safety, accessibility and task performance.

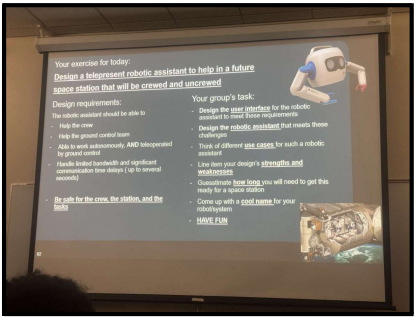


Prof. Kyrarini's lecture.

Tuesday brought **Prof. Daniel Goldman from Georgia Tech**, who talked about bio-inspired and "robo-physical systems" like he would call it; the science of machines that move the way biological organisms do, including the work behind Ground Control Robotics' Scuttle robot, a caterpillar-inspired machine that students would later be trying to control as part of the design challenge.

Pictures from Prof. Goldman's lecture

After him, **Dr. Neal Lii from DLR; the German Space Agency** gave what might have been the most ambitious lecture brief of the week. He asked students to design a telepresent robotic assistant for a future space station; one that would need to help the crew, assist ground control operators, work autonomously, handle significant communication time delays and remain safe for humans to work alongside. Oh, and come up with a good name for it. The room took that last instruction seriously, because apparently even future space robotics needs good branding.



Wednesday was **Prof. Levi Hargrove from Northwestern University**, whose lecture traced the full history of bionics from the earliest prosthetic devices to modern neural-interfaced limbs. The lecture traced how the field developed and how researchers have progressively tried to restore or augment human capabilities through technology.

Prof. Jamison Heard from Rochester Institute of Technology followed with a talk on shared control with reinforcement learning: how a robot can learn from the humans it works with, adapt to them, and share decision-making without either party getting in the other's way. It is a harder problem than it sounds, especially when you factor in real-time human state assessment; the robot has to understand not just what you're doing, but how you're doing.

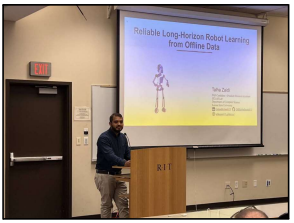
Thursday's highlight was **Prof. Selma Šabanović from Indiana University Bloomington**, whose lecture on robots in social worlds was one of those talks that changes the frame you use to look at everything else. She talked about how different communities and cultures relate to robots; her work on Japan and social robots in particular opened up a conversation in the room about assumptions that engineers often bake into their designs without realising it. Not every culture wants the same thing from a robot. Not every user is the same user. It sounds obvious. It isn't always obvious in practice.

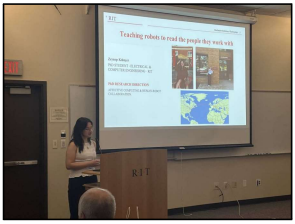
Friday closed with **Dr. Ashitey Trebi-Ollennu from NASA/JPL**, who walked through NASA's robotic Mars missions, the agency's vision for space networking, the Delay Tolerant Networking protocol and how augmented reality is being used to support astronaut operations in space. There is something about hearing that from someone who has actually worked on Mars robotics that makes it land differently than reading about it.

Lastly, Dr. Edward Tunstel from Southwest Research Institute followed with a grounded, practical look at real-world telepresence, the engineering realities that research papers don't always capture, from latency issues to operator fatigue to the unglamorous but necessary work of making systems actually reliable outside a lab.

THE STUDENT PITCH

Woven into the schedule were three-minute student pitches; each student got a few minutes to introduce themselves, talk about their research, and share whatever they felt was relevant to the week. Hearing the range of work in that room; from robotics control systems to accessible interface design to VR-based teleoperation to UI/UX research gave the whole week a rich texture and students were able to connect with each other better. By the end of it, you had a mental map of who was working on what, where the interesting overlaps were, and who you needed to find during the breaks.
Attached are some selected pictures of the students' presentation.



INDUSTRY PRESENTATION

The summer school also gave a glimpse into what these technologies look like beyond the classroom and research lab. We heard from Kaptics, Ground Control Robotics (from Professor Goldman's lecture) and D3 Embedded, who shared perspectives on the technologies, products and engineering challenges they are tackling in industry.

THE DESIGN CHALLENGE

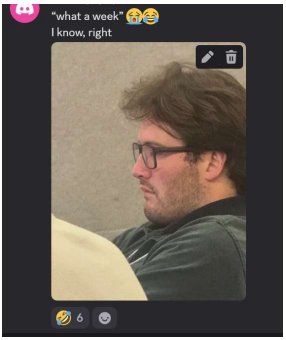
This is where things got real. And I mean that in every sense.

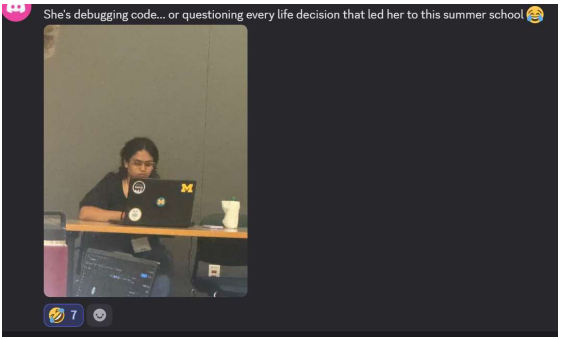
We were split into teams of four and given the main challenge of the week: build a Unified User Interface; a UUI that lets a single human operator control at least two robots simultaneously. The available hardware included a humanoid robot, a rover, a Scuttle, and a Cobot (an autonomous car-like robot). The interface had to work across platforms. It had to be intuitive enough for someone who wasn't necessarily a robotics expert. And it had to actually run, in front of teleoperators on the final day.

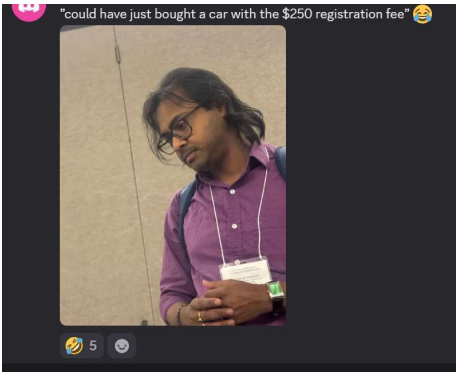
The support team; Daniel Soto from Ground Control Robotics, Mohamad Shaaban, Olmo Moreno, and Yonas Tefera from IIT Italy, and the team from Kaptics, a Montreal-based VR company co-founded by Marc-Antoine Moinnereau and Alexandre Oillic had provided plugins, software, and setup guidance beforehand. In theory, we were prepared. In practice, day one of the challenge was a crash course in humility.

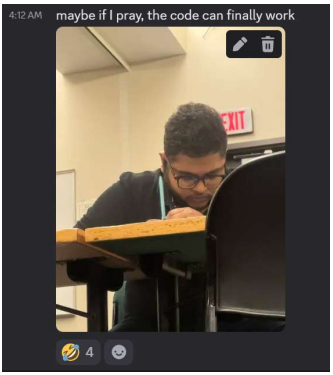
Some of us had never touched Figma before. Some of us were installing Unreal Engine at midnight and hoping the plugins worked. Integration issues showed up almost immediately. Software that was supposed to talk to hardware was not talking to hardware. People who had never worked together were suddenly trying to make design decisions at 1 a.m. that would affect whether the whole thing ran in three days. It was, to put it diplomatically, a process.

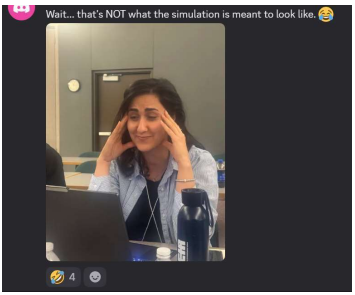
The Discord group became the unofficial command centre for all of this. Updates, questions, troubleshooting threads, and as the nights got later and the bugs got weirder, memes. We started making memes of ourselves. Of the debugging. Of the robots. Of each other. It sounds chaotic because it was. But it was also the thing that kept everyone going. There is something about shared suffering at 2am that builds a kind of solidarity you don't get from a networking event.











The original plan was to interface with all robot form factor types. That plan met reality fairly quickly. Integration issues, hardware availability and the brutal reality of a five-day timeline meant that the consensus shifted. The teams later focused on the Cobot and the Scuttle.

On the final day, the teams presented their interfaces to the evaluators. The winning teams took home prizes. Everyone else took home something arguably more useful; a much clearer understanding of what it actually takes to build a human-machine interface in real time pressure.

Some pictures of the support team figuring things out.

Winning team of the design challenge

Second place team, design challenge

EVERYTHING ELSE

RIT's Global Village, where students stayed, sits inside one of the more beautiful university campuses you'll find; quiet, green, well-designed. Most students barely had time to appreciate it. A few managed to get a frisbee game going on the grounds. A few others made it into the city for dinner, where Rochester's most famous local dish; the Garbage Plate, was waiting for them. It is a pile of food that defies easy description and fully lives up to its name. It is also, apparently, very good.

The summer school also happened to coincide with the World Cup. At some point during the lunch break; participants and experts gathered around a large screen to watch a match.

On the Saturday after the school ended, a group of students made a trip to Niagara Falls.

The 2026 IEEE Summer School on Telerobotics and Cyborg Technologies was not a conference and it was not a workshop. It was something harder to categorise; part education, part design sprint, part community. Thirty students from different parts of the world spent five days being pushed to think across disciplines they didn't always overlap with, build things they hadn't built before, and work with people they'd never met. The robots didn't always cooperate. The interfaces weren't always clean. The sleep was never enough.

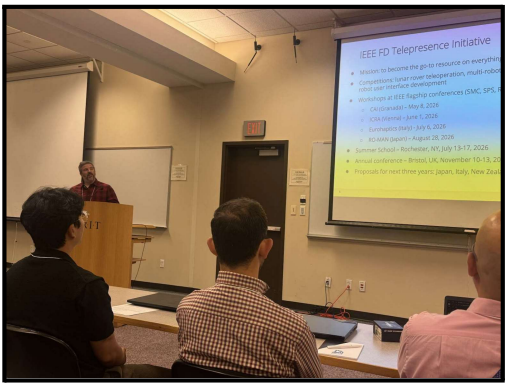
But if you ask anyone who was there, they'll tell you the same thing: the summer school was exactly what it needed to be.

IEEE SMC Student Corner · September 2026

Written by: Tosin.

SOME MORE PICTURES AT THE SUMMER SCHOOL


I study
humans
machines
And all the strange
things in between


IEEE FD Telepresence Initiative


1st IEEE Summer School on
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Organizers: Tiago H. Falk, Ferat Sahin,
and Adrian Stoica