



Erica Cochran Hameen, Assistant Professor in the Carnegie Mellon University (CMU) School of Architecture, is the Co-Director of the Center for Building Performance and Diagnostics; she also serves as track chair or co-chair for several graduate programs. In all roles she inhabits, she is driven by twin overarching goals: nurturing students at all levels to become leaders in architecture and other design fields, and pursuing design justice for all members of the public, particularly minority populations.

PROFESSOR SPOTLIGHT

by Cynthia Mwenja, PhD

Student Mentorship & Design Justice at Carnegie Mellon

Student Advocate

Hameen empowers her students to pursue and deepen their own disparate interests, and they appreciate both the respect and compassion she shows for them and their work. Christina Brown, currently Architectural Designer at KPF and a CMU 2020 graduate, had Hameen as both a thesis advisor and architectural studio professor. Brown says she was “allowed to explore and flourish” in her own design work while balancing personal responsibilities outside of the academy; she credits Hameen’s flexibility for her own achievements. Similarly, Taylor Latimer, fifth-year senior in CMU’s Bachelor of Architecture program, credits Hameen for her decision to pursue an advanced degree in urban planning. Without Hameen’s guidance, Latimer says, she would have been more focused on individual buildings and ideas rather than the larger impacts she now sees she can make working at larger scales.

Other students express gratitude for Hameen’s guidance, as well. Alyssa Mayorga, CMU 2020 graduate and current graduate student, has developed a project examining Black Cultural Zones, with five case studies looking at the historical attributes of these

spaces. She says that Hameen pushed her to think outside of her preconceived boundaries for the project by examining the impact of these spaces in their communities as well as the makeup of the design teams who brought the spaces into being. Bobuchi Ken-Opurum, current PhD candidate and Research Assistant in the Center for Building Performance and Diagnostics, says that Hameen is “beyond supportive” and will learn what is needed to help students pursue their individual interests. Ken-Opurum, who researches resiliency in the built environment, currently focuses on her PhD project, a decision support toolkit for self-build structures in the global South. While pursuing a PhD can often sharply narrow a student’s interests, Ken-Opurum says, she has seen her own range of interests expand in working with Hameen because of the multiple areas Hameen engages.

Hameen’s students also learn much more than the curriculum from her, including balancing personal life with professional obligations. Brown says that Hameen taught her “how to love her work and profession while still preserving [her] life and wellbeing” and that the “lesson was priceless.” Mayorga says that

Hameen “embodies being a working mom and encourages greatness in personal and professional life” with her living example. Hameen’s qualities as a person stand out for her students, as well. Latimer says that Hameen always makes time for anyone who needs help; “she will go out of her way to support and be there for” people. Mayorga captures the consensus opinion in saying that Hameen is “just a light.”

Diversity, Equity, and Inclusion

The current five-year strategic plan at CMU centers on articulating and pursuing measurable goals for increasing diversity, equity, and inclusion (DEI) on campus. This initiative is a campus-wide concerted effort to address clear issues with diversity and inclusion, and Hameen serves on the DEI committee. Joshua Lee, Assistant Professor of Architecture at Carnegie Mellon and Track co-Chair of Master of Science in Architecture–Engineering–Construction Management (MSAECM) along with Hameen, says that CMU has an extremely diverse campus—particularly in graduate programs, with students from all over the world—but it could have better representation from local Pittsburgh students as well as Black, Indigenous,



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and People of Color (BIPOC) individuals from across the U.S.

Hameen is also the faculty mentor for the CMU chapter of the National Organization of Minority Architects Students (NOMAS), whose mission is “to champion diversity within the design professions by promoting the excellence, community engagement, and professional development of its members.” NOMAS at CMU has started an initiative for diversity and inclusion within the school of architecture; Latimer reports that they are developing a retention program for BIPOC students, as well. In establishing these programs with input from Hameen, Latimer says, they hope to support students who may struggle to stay in school for various reasons.

Creating a Pipeline

Hameen focuses on creating a lifelong school-to-career pipeline for BIPOC students. Her strategies include attracting students to the university with K-12 outreach, mentoring them throughout their undergraduate and graduate degree programs, helping them to gain employment, and guiding them into leadership within their fields; Lee says that Hameen works

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the entire range simultaneously. For example, students in Hameen’s indoor air quality courses learn how to use the equipment measuring air quality, then go to local high schools to train students there. By promoting such partnerships, Lee says, Hameen has been “extremely successful” at recruiting students from local high schools and mentoring them all the way through their degrees. She also connects students with her personal networks to secure jobs upon graduation. Ken-Opurum says that Hameen mentors students so that they surpass expectations, moving into leadership within their organizations.

Hameen volunteers with a variety of programs focused on increasing diversity in design fields. One program, through the National Organization of Minority Architects (NOMA), is called Project Pipeline; it has a goal of mentoring minority students, building strong cohorts, and supporting participants through school and after graduation. The program strives to find BIPOC students when they’re young, showing them that STEM fields can be fun and that BIPOC people can flourish in design fields.

Another major initiative for a school-to-career pipeline is the Urban Design Regional Employment Action for Minorities (UDREAM)

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program. The program—which previously ran from 2009 to 2016—offered a multi-pronged approach to increasing diversity in design fields, particularly in the Pittsburgh area. Students in the program—many of whom were first-generation students recruited from HBCUs—attended five weeks of classes at CMU, engaged in community service and internship opportunities, and received both professional development and job placement support. Prior to UDREAM’s establishment, Pittsburgh had

only six BIPOC professionals working as architects or in construction management; after nine years, that number had increased by 400%.

Past president of CMU’s NOMAS chapter, Mayorga currently serves as Research Assistant under Hameen for UDREAM. Together, they are beginning to revise the program for future re-development. With a grant from the Heinz Endowment, they are currently planning three stakeholder meetings with CMU university leadership, HBCU institutions, and local

community organizers; the goal is to create a structure so that UDREAM can be reinstated.

“Ms. Erica”

In a very different initiative, a group of Hameen’s PhD students are building a robot to measure indoor air quality. In honor of Hameen, one participant dubbed the robot “Ms. Erica”: Mobile Sensing and Educational Robot for Indoor Climate Assessment. When measuring indoor air quality, people want to know all kinds of measures, but buying each sensor individually can be pricey and overwhelming. Additionally, lugging a cart holding all of the sensors from room to room can be laborious and time-consuming. Instead, the team working with Hameen is attaching sensors to a robot akin to a “tall Roomba” to measure air quality, lighting, temperature variables, and humidity. Such robots can help with post-occupancy evaluation (POE) which can show whether a building’s design is working as intended.

Hameen says that this project has been a lot of fun, and she sees multiple avenues for its application. In one of her courses, her students

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do POE in local schools; Ms. Erica units could help with those assessments. She envisions each school system owning or renting units to help prioritize how to spend renovation monies. Ever alert for student engagement, Hameen also pictures these robots being able to talk with students, giving them real-time information about their classroom environment.

This type of project emerges from cross-disciplinary collaboration. As Hameen notes, “We’re designers, but some problems can be solved if we talk to people in other fields; we can learn from each other.” These collaborations can also extend to industry. Currently, the Ms. Erica units are built one by one in a student’s apartment because CMU’s labs are closed due to Covid; an industry collaborator could produce units much more quickly and efficiently.

Design Justice

According to the Design Justice Network, “Design justice rethinks design processes, centers people who are normally marginalized by design, and uses collaborative, creative practices to address the deepest challenges our communities

face.” In every aspect of her work, Hameen is driven by these ideas. As she points out, many design decisions can be literally matters of life or death. For example, access to clean air and water is critical to health, but many people living in the U.S. lack both. Hameen constantly thinks about how everyone in the country should enjoy the same bare minimum quality in neighborhoods and schools; these attributes should not vary based on the race and income of the local people. Hameen’s students share her motivation; Latimer says that she has always cared about people-centered design and that Hameen has strengthened that interest by quantifying how buildings affect people, especially minority populations. Hameen has taught Latimer that architects are servants to the public who should create spaces that work both for the occupants and the surrounding communities.

When working in New York designing public buildings such as schools, libraries, and train stations, Hameen was forcefully struck by the difference in the quality of architecture in different neighborhoods; these differences were clearly tied to race, immigration status,

and wealth of the neighborhoods’ inhabitants. One building in particular—a school in Queens with a majority Black and Hispanic population—made Hameen say “That’s not right” and changed the course of her career. Hameen’s firm had been asked to assess the structure, and they found leaking roofs and walls, mold throughout, thick rust eroding the structural steel, the imminent danger of bricks falling from the façade, a guidance counselor’s office in an un-remodeled bathroom, and more. The school could not afford the several million dollars needed to renovate the building, so they simply erected scaffolding to prevent falling bricks from harming passersby.

This experience forcefully demonstrated to Hameen that children who underperform in such surroundings aren’t at fault—the environment is one of their problems. In her PhD project, Hameen focused on a statistical study linking attributes of the built environment to not only student health, but also to student achievement. In diagnosing buildings, she offers both qualitative and quantitative measures to show how building attributes affect students.



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As she says, “When I can say that daylight is linked to test scores, maybe it will become illegal to have windowless classrooms.” Many stakeholders value and will use such information, including policymakers, teachers fighting for equity, parents seeking better education, and corporations interested in boosting worker productivity.

Hameen’s pursuit of design justice necessarily prioritizes people. Lee says that Hameen is a “force of nature” who “works tirelessly to promote the health of BIPOC students, faculty, Pittsburgh, and ultimately the planet. She works at multiple scales simultaneously, and it’s amazing to watch.” Hameen says that people who work in universities can’t just limit themselves to teaching and research, “We have to care about and work with the community.” In Hameen’s vision—as well as in her practice—industry, academia, and local communities all work together to move ever closer to the goals of social equity and design justice.



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