

March 13, 2023

The School of Computer Science is nominating **Prashanti Anderson** as our recipient of the Carnegie Mellon Women's Association Scholarship for 2023. Prashanti is incredibly smart, even by CMU standards: she completed the advanced 15-455 Complexity Theory course in her sophomore fall along with 15-210 and Math Studies Algebra, and she took 15-451 Algorithm Design and Analysis the following spring, along with 15-213 Computer Systems, and 15-259 Probability and Computing (the most rigorous of our probability choices) along with Math Studies Algebra II. She has also completed four graduate theory courses, the most, we believe, of any CS student graduating this year!

She is also doing a senior research thesis with Professor Pravesh Kothari titled "Learning Mixtures of Zero-Mean Gaussians." According to Prashanti, "Learning mixtures of Gaussians is one of the core problems of modern statistics. Recent advancements at the intersection of modern statistics and theoretical computer science give algorithms that can learn d -dimensional mixtures of k -Gaussians with $d^{O(k)}$ samples and time... However, this family of hard mixtures is the only such known hard family, and many natural and practical mixtures do not fall under this family. One such category of instances is zero-mean mixtures, for which we do not know any prohibitive lower bound. The goal of this project is to either provide a sub-exponential algorithm for learning zero-mean mixtures or produce a hard family of zero-mean mixtures which require exponential sample complexity." She has already made substantial progress with her theoretical work, and she will be presenting her final results at Meeting of the Minds this May. She is planning to pursue a PhD after graduation.

In addition to her academic ability and success, Prashanti is also incredibly compassionate. This has been demonstrated multiple times during her time as a teaching assistant for 15-251, one of the hardest courses that students take in Computer Science due to its deep theoretical content about the study of computation itself. From one of the instructors of 15-251, he comments that "Prashanti is one of the top students at CMU in various dimensions. First of all, academically, she is one of the top students in her year among the computer science majors (over 200 students). She is a very talented and experienced teacher. And she has emerged as a leader, having served/serving as a head TA for 15-251 for this academic year. She has been a role model for other students here. It is very rare to find someone that combines very strong technical skills, leadership skills, and work ethic." Student feedback typically has words like "awesome", "epic", "helpful", "engaging", "amazing", and "legend." In addition to the huge impact she has had on students as a positive role model for women, she demonstrated her commitment and care helping an older student through a personal crisis.

When it came to selecting a nominee for the CMWA Scholarship, we all agreed that Prashanti Anderson was our winner for 2023. She is an outstanding, young woman who has a bright future ahead, and she is a great role model for women in computing.

Sincerely,



Dr. Thomas J. Cortina
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