

COREY PEARSON

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I AM QUANTUM

I build and test LiDAR (Light Detection and Ranging) and imaging systems that create three-dimensional reconstructions of objects for improving vision in foggy environments.

WHAT IS MY CONNECTION TO QUANTUM?

I use lasers in my optical systems to illuminate the objects that I am imaging. Lasers work through a process called stimulated emission. Electrons in a material are excited, by a pump or an energy source, to a higher QUANTIZED energy level. A photon then stimulates the already excited electron, making it drop to a lower energy level and emit an identical photon. This causes the two photons to be coherent, which is a special property of lasers. My LiDAR and imaging systems use this coherence property to detect weak signals. To clarify vocabulary, exciting an electron causes it to jump to a higher energy level. An electron can return to a lower energy level spontaneously (on its own), or due to being stimulated by a photon - hence why this is called stimulated emission, even though the electron is dropping to a lower energy level.

OUTSIDE OF WORK, I love to cook, especially for my friends. I think that doing something creative in my free time lets me use a different part of my brain.

WHAT ADVICE WOULD I GIVE HIGH SCHOOL ME?

The world of science and engineering is larger than you can imagine, and it is okay for your goals to change as you explore it! When I was in high school, I was convinced that I would be an astrophysicist. My college physics classes got me interested in optics and photonics, but I also learned that I enjoy the hands-on element of engineering. In grad school I found a project that allowed me to learn about both physics and engineering!



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