



From GIST to *Nature*

Interview with Professor Young Min Song

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Most students who plan to become a researcher want to write their own paper and publish it in a famous journal like *Nature* or *Science*. The problem is that it is difficult to find any information about publishing research papers when you are an undergraduate student. That is the reason why I found someone who knows how to publish in a good journal and who can give good advice to students.

I interviewed Professor Young Min Song who graduated from the School of Electrical Engineering and Computer Science (EECS) at the Gwangju Institute of Science and Technology (GIST) in 2011 and became a GIST professor in 2016.

Professor Song's story begins when he was sophomore. He worked at a company as an intern for a while, but he found out that working for a company isn't for him because he can't improve himself. After coming back to school, he decided to go to graduate school at GIST. His graduation thesis was about the properties of insects' eyes, focusing on eyes that can absorb light in a dark environment. Then he participated in a project as a postdoc at the University of Illinois to imitate insect eyes. The project's idea was inspired by insects that can see wide angles without moving their heads or eyes.



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Later, Professor Song became a leader for the project. After many trials and failures, he finally made a digital camera that has 180 lenses with a wide-angle view like an insect's eye. To publish the result in *Nature*, he tried to write a paper that is easy to understand and interesting to a broad range of researchers. For example, he mentioned the exact name of the insect that has 180 eyes in his paper (*Solenopsis fugax* and *Hylastes nigrinus*) to make it easy for entomologists to understand the power of his digital camera. Finally, on May 1, 2013, he published a paper as the first-author in *Nature*: “Digital cameras with designs inspired by the arthropod eye” (<https://www.nature.com/articles/nature12083>).

After listening to the story of how he published his paper, I was sure that Professor Song can share secrets about publishing papers with us students. When I asked him for the secret of publishing a paper in *Nature*, he gave me three important suggestions to remember.

- First, study a lot.
- Second, talk a lot with others.
- Third, practice writing.

Not just having a great idea but also studying hard enough to understand others' experiments is really important for researchers. To understand others' experiments or knowledge, we should put in a lot of effort and study hard. We should encounter many problems and overcome them. There is no shortcut to achieving this point.

Thinking alone cannot give us creative or practical ideas. However, when we talk with others, we can gain broader insights and new perspectives that can make our ideas better. These days a lot of ideas sound inventive, but most of them are not realistic and need more discussions with others before coming out. Also, innovative and realistic ideas can be found when we are ready with enough studying to make the idea real.

A lot of students don't know how to write their papers. When Professor Song advises students, there are some students who have done a good experiment with great results, but they cannot write a paper about it. This is because a lot of students have never practiced

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writing before. To write persuasive papers, we need to put in a lot of effort and practice. Students should focus on finishing their papers and not on which journals they want to publish their papers. For undergraduates, keep trying to find the meaning of your results in the experiment courses.

Also, finding a good laboratory and professor is really important for students. Professor Song says the most important thing is whether there are visible outcomes or not. We can check those outcomes by looking at a laboratory’s webpage. Another thing we should consider is the personality of the professor, but this is really hard to find out before we join a lab. He said that a professor who cares about student achievements without pushing students by insulting their character is good for the students.

Professor Song’s conclusion for students was to choose a lab with good performance and a good professor who can improve the students’ skills and abilities. Then he added that GIST EECS has a lot of potential, and most of the professors’ performances is really great, so students do not need to worry about going to GIST for our graduate school. After the interview, I checked his lab Flexible Opto Electronics Laboratory (<https://www.gist-foel.net/>) and found great outcomes that support his words.

This interview was a great chance for me and was really joyful, too. I could feel that Professor Song always tries to listen to other people’s words and tries to understand their opinion. Without this interview, I also could not ask a lot of things that I have always wondered about. I hope this interview will be helpful to other students who want to be a great scientist or engineer.

When we left Professor Song’s office, he asked me to say one last thing to GIST students: “Talk with many different people, find out what you want—not what others want, and remember that you can change your field whenever you want. Nothing is wasted if you can learn something, so don’t be nervous. Also, STUDY HARD!”