

**CUHK Convocation Outstanding Services  
and Creativity Student Awards 2022/23**  
香港中文大學校友評議會傑出服務及創意學生獎 2022/23

**Name** Taehun Lee

**Major** Mechanical and Automation Engineering (minor in Computer Science)

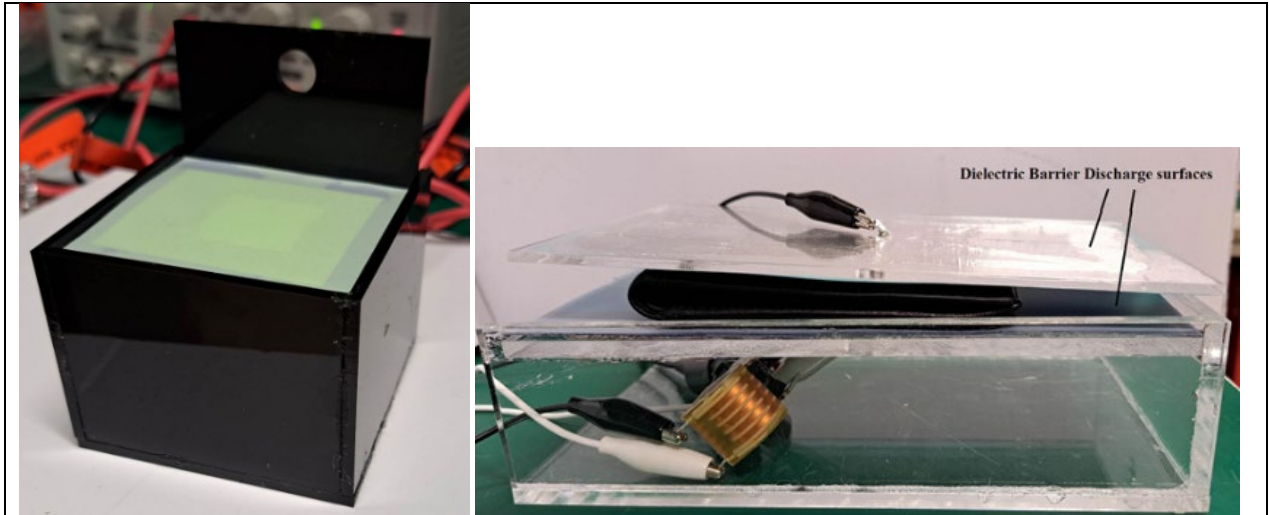
I am sincerely honoured to be the recipient of CUHK Convocation Outstanding Services and Creativity Student Awards 2022/23. I would like to express my gratitude to the CUHK Convocation Standing Committee for the award.

Making use of scientific knowledge and cutting-edge technology for our convenience and efficiency and has been my enthusiasm throughout. I genuinely enjoyed making robots and programs – such as self-cleaning robot, university time-schedule arranger, various mobile apps etc. - that enable us humans to live in a more high-quality environment. It is the major reason why I chose to study engineering.

**Portable surface disinfection device**

As the importance of hygiene and protection from disease is highly increasing due to the outbreak of COVID-19, I decided to make a surface disinfection device which is portable, affordable and efficient in sterilizing all the bacteria that can possibly spread disease by contact, with help of Professor Hay Wong. To do so, I have made use of Non-Thermal Plasma (plasma produced by electric field to a gas not by heat, therefore safe to touch with human hands). Non-Thermal Plasma, when contacted, kills bacteria by damaging microbial DNA and surface structures, without harming human tissues, commonly used in medical and food industry for sterilization use. In the project, I implemented Non-Thermal plasma to create a portable device. The device is portable, affordable and has advantages over other disinfection items. For example, alcohol-based items (hand-sanitizing gel) are disposable and people with sensitive skin cannot use it, and UV disinfection devices are expensive and not portable. My portable surface disinfection device is portable, appropriate for both domestic and industrial usage and highly efficient with 99.9% disinfection rate with 10~30 contact.

I once again would like to appreciate CUHK Convocation Standing Committee for granting with the award, which motivates me further to become and work harder as an engineer.



Prototypes for the surface sterilization device, which are for single-surface sterilization (left) and double-surface sterilization (right)

**Photo 2 (Please insert your photo here. For group photo, please indicate your position.)**

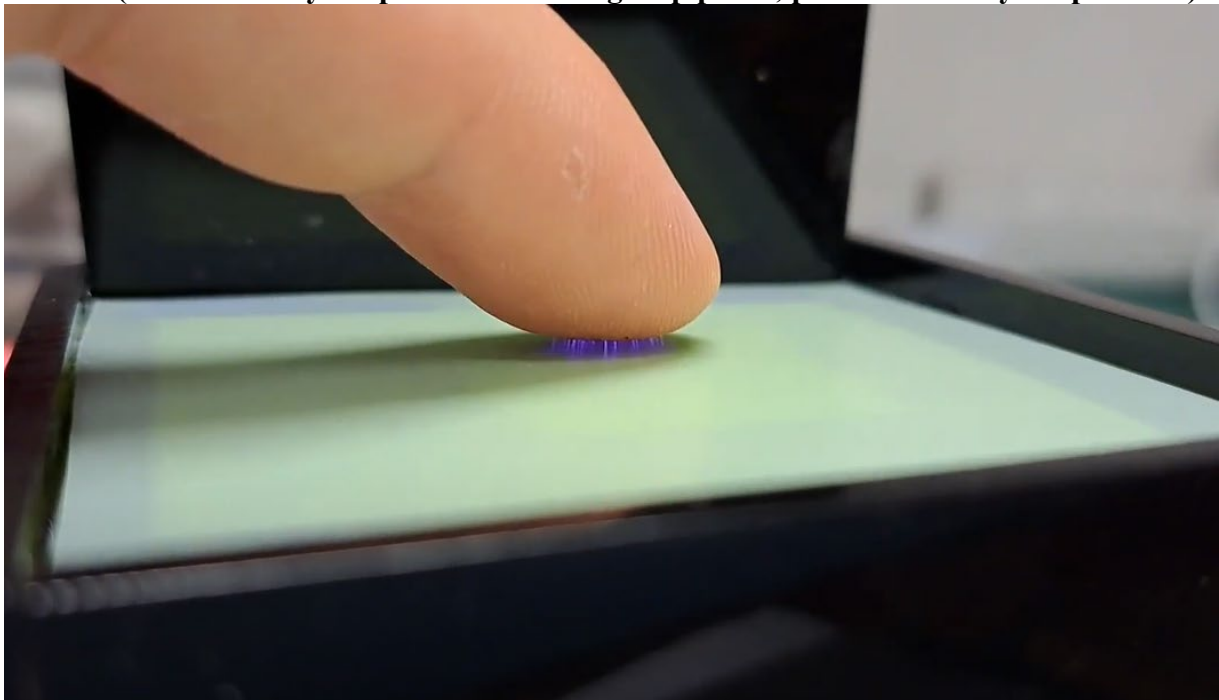


Image of Non-Thermal Plasma (purple-colored plasma between the surface and finger) for finger sterilization with the devices