

## SEOYOUNG KWEON

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- Education:** **Columbia University in the City of New York**, New York, NY  
Majoring in Computer Science (Bachelor of Science), May 2023  
Cumulative G.P.A. 3.89 / 4.0
- The Cooper Union for the Advancement of Science and Art**, New York, NY  
Electrical Engineering Comp.E Track, Attended Fall 2019 - Spring 2020  
Completed 35.5 credits, Cumulative G.P.A. 3.7 / 4.0
- Publication:** Lin Ai, Yu-Wen Chen, Yuwen Yu, **Seoyoung Kweon**, Julia Hirschberg and Sarah Ita Levitan,  
“Unveiling the Influencers of Radical Content: A Multimodal Analysis of QAnon Videos”, IC2S2  
2023.
- Experience:** **FUZZING PROJECT**, Columbia, New York. January 2023-Current  
Research Assistant
- Enhance AFL++, current state-of-art fuzzer, with line search algorithm
  - Modify LLVM pass to 1) implement log functions in binary to give our fuzzer more information on coverage, 2) add locks to enable multicore compilation, and 3) parse various strcmp-like functions
  - Modify Python script to generate metadata files from LLVM IR files of the test binaries
  - Build testbeds and add more logging into fuzzer to track performance
- SPOKEN LANGUAGE LAB**, Columbia, New York. January-December 2022  
Multimodal Research on Radicalization, Research Assistant
- Extracted facial emotion features from videos and studied patterns in radicalizing and deradicalizing content
  - Extracted transcripts from the video data set and ran textual sentiment analysis
  - Studied metadata of video likes and views to categorize popularity to find what features make the video likable
  - Studied the correlation between the pattern in metadata (increase in video uploads or increase in comments) and the real-life events
- CLOUZEN**, Gyeonggi Hwaseong-si, South Korea. May-September 2021  
Summer Internship, Application Development
- Programmed a full prototype application that can parse and handle data for user interaction.
  - Designed frontend and backend of an app to provide intuitive UI and efficient data processing
  - Fixed existing server-side program to handle invalid requests with appropriate responses
  - Designed and created webpages to display the server-side responses.
  - Documented the programmed work to share with other coworkers
  - Held a weekly presentation to report on the progress of the assignment for feedback.
- Project Work:** **OS PROJECTS**, Linux Operating System Fall 2021  
<https://gist.github.com/amykweon/03a87af0c8e983848419999b8929feeb>
- Multiple projects related to understanding and changing core Linux operating system.
  - Implemented lock mechanism in custom system calls to enable multiple concurrent processes.
  - Implemented several modules to add system calls that show understanding on the concept of task\_struct, virtual address translation.
  - Created simplified scheduler and file system and replaced existing ones.
- SALE COUPON COLLECTION**, Database System Fall 2021  
<https://gitfront.io/r/amykweon/93171470f2f51371f79f66990e86051d4b028e72/4111-dbProj/>
- Designed an ER diagram and schema based on a creative and complex real-life proposal.
  - Implemented the ER diagram in PostgreSQL database server with realistic data.
  - Created a web-front end application with python3 SQLAlchemy for user interactions such as queries or add/deletion of data.
- TCP CONNECTION**, Computer Network Fall 2021  
[https://github.com/amykweon/TCP\\_Connection.git](https://github.com/amykweon/TCP_Connection.git)
- Learned detailed components of TCP connection that ensure reliability and security.
  - Created python program that implements simplified TCP on top of a raw socket.
  - Tested and proven robust against dropped packet, out-of-order packet, and byte error.

Teaching Experience	<ul style="list-style-type: none"> <li>• <b>Physics: Electromagnetism &amp; Optics</b> at Columbia</li> <li>• <b>Operating Systems I</b> at Columbia</li> </ul>	Spring 2023 Fall 2022
Courses:	<ul style="list-style-type: none"> <li>• Operating Systems I; Computer Networks; Programming Language &amp; Translator</li> <li>• Artificial Intelligence; Machine Learning; Natural Language Processing</li> <li>• Intro to Cryptography; Security I; Database System Implementations</li> </ul>	
Skills:	<ul style="list-style-type: none"> <li>• <b>Computer Languages:</b> C, C++, Java, Python, JavaScript, PostgreSQL</li> <li>• <b>Computer Programs:</b> AutoCAD, SolidWorks, Eagle, Adobe Illustrator, Adobe Photoshop, Microsoft Office, Processing, Arduino</li> <li>• <b>Laboratory Equipment:</b> Oscilloscope, Multimeter</li> <li>• <b>Languages:</b> Fluent in English and Korean</li> </ul>	
Honors:	<ul style="list-style-type: none"> <li>• Columbia University, Dean's List, Fall 2020-Fall 2021, Spring 2023</li> <li>• The Cooper Union, Half-Tuition scholarship, 2019-2020</li> </ul>	
Membership:	<ul style="list-style-type: none"> <li>• Member of Society of Women Engineers (SWE)</li> <li>• Electronics Member of FSAE</li> <li>• President, Korean Animal Service Association</li> </ul>	2019 - 2022 2019 - 2021 2015 - 2019