

IO Kim

High School Junior | Springfield Commonwealth Academy, MA

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ACADEMIC & RESEARCH INTERESTS

Dermatology • Skin Biology • Psychosocial Health • Human-Centered & Computational Analysis

RESEARCH EXPERIENCES

Bacterial Cellulose-Based Therapeutic Patches with Natural Dye Integration | 2025

Worked with Ph.D. candidate Woojin Kang at Theoretical and Computational Soft Matters laboratory at Seoul National University to develop biodegradable bacterial cellulose skin patches. Integrated natural dyes for tone matching and therapeutic agents for anti-inflammatory and antimicrobial effects; evaluated absorption, release kinetics, adhesion, and antimicrobial performance.

Fine-Grained Class Detection via Hierarchical Pattern Learning for Psychoanalysis Drawing Interpretation | 2024–2025

Developed a CNN-based system to automate HTP drawing interpretation, training on **56,000+ de-identified annotated images** under technical guidance from an AI researcher.

Harvard Science Research Conference (HSRC) | Participant, 2025

Attended a two-day student-run conference hosted at Harvard that gives high school students exposure to research, workshops, mentoring, and scientific presentations.

AWARDS & HONORS

USA Computing Olympiad (USACO) - Gold Division (Certified) | 2026

- Demonstrated advanced algorithmic problem-solving and structured computational thinking

YoungArts Winner (Visual Arts), United States | 2025

- Recognized for a body of work examining skin as a site of identity, illness, visibility, and human vulnerability

Korea Science & Engineering Fair (KSEF)

- National Gold Award | 2026
- International Silver Award | 2026

John Locke Essay Competition (Theology): Global Shortlist | 2025

- Explored prayer as a psychological self-regulation mechanism, integrating philosophy, ethics, and cognitive psychology

Scholastic Art & Writing Awards | 2022–Present

- Recognized for sustained visual art work reinterpreting skin, identity, and visibility

CLUBS & EXTRA CURRICULAR ACTIVITIES

Teen Bridge International Translation Volunteer | 2023–Present

Provided Korean–English translations for pediatric oncology patients every month. Translated children’s books and medical guides, bridging language gaps for families navigating care.

Psychology Club, Founder/Leader | 2024–2025

Led student initiatives on mental health awareness, facilitating peer discussions grounded in psychological concepts

Silver Stories Co-founder & Art Director | 2024–Present

Co-founded a platform amplifying senior voices through art. Curated intergenerational exhibitions featuring 20 elders and led volunteers to produce visual stories, reaching 100+ audience members and bridging generational gaps.

Artivism Club, President and Leader | 2024–2025

Spearheaded art service initiative for Trenton students. Designed and led weekly art programs for elementary students in underserved communities.

Art Committee Visual Art Director | 2024–2025

Directed visual arts initiatives. Curated schoolwide exhibitions, led grade-wide projects, and served as faculty liaison to expand studio access. Organized over 4 exhibitions featuring 50 artworks and drew over 200 attendees.

SKILLS

Languages: English (fluent), Korean (native), French (academic coursework), Chinese (basic)

Programming: Python (Deep Learning), C++, CNN Architectures

Data Analysis: Image Annotation, Model Evaluation (IoU, Precision/Recall)

Varsity Rowing | 2024–Present