

Song Eun (Song) Kim
3706 Litchfield Pl.
West Lafayette, IN 47906
(765) 357-1890 | songkimwl@gmail.com

Born 2002, Berkeley, CA

Education

William Henry Harrison High School, Class of 2021

West Lafayette Jr./Sr. High School (2015-2017)

Current Grade Point Average: 4.0/4.0

Honors and Awards

STEM

- 2020 Selected for Research Science Institute sponsored by the Center for Excellence in Education at Massachusetts Institute of Technology
- Department of Defense Scholar at 2020 Research Science Institute
- 2019 USA Junior Mathematical Olympiad qualifier
- 2019 U.S. National Chemistry Olympiad Honors
- 2017-2018, 2018-2019, 2019-2020 USA Computing Olympiad; Gold division January 2019-present
- 2020 NCWIT Award for Aspirations in Computing
 - National Honorable Mention
 - Indiana Winner
- 2016, 2017, 2018, 2019, 2020 American Invitational Mathematics Examination Qualifier
- 2017, 2018, 2019 Math Prize for Girls at MIT participant; Honorable Mention (2018: 15th place, 2019: 13th place)
- 2018, 2019 Math Prize for Girls Olympiad participant
- 2017, 2018, 2019, 2020 Indiana Math League participant; winner (2019, 2020) perfect score
- 2017, 2018, 2019 Rose-Hulman High School Mathematics Competition winner; Sally Shonk memorial award (2017), Mary Rhein memorial award (2018)
- 2018 Korean-American Scientists and Engineers Association National Math Competition winner, 9th grade division; perfect score
- Indiana Association of School Principals Rising Star of Indiana Class of 2021
- 2019 Indiana Association of School Principals Academic Super Bowl participant
 - Science: state champions
 - Math: 3rd place in state

- 2020 Harvard-MIT Mathematics Tournament participant
- 2018, 2019 American Regions Mathematics League participant
- 2019 Washington University Chemistry Tournament participant
- 2018, 2019, 2020 Regional Science Bowl participant; 3rd place (2020)
- 2018 Varsity Quiz Bowl State Champions
- 2016-2017 State Science Olympiad participant
 - Rocks and Minerals: 1st place (2017)
 - Reach for the Stars: 2nd place (2016)
- Departmental Academic Awards at Harrison High School
 - 2020 Outstanding English and AP Physics C Student
 - 2019 Outstanding AP Chemistry and Multivariate Calculus/Linear Algebra Student, Outstanding Advanced Concert Band Member
 - 2018 Outstanding AP Calculus BC and Honors Biology Student, Outstanding Intermediate Concert Band Member

World Language

- 2017, 2018, 2019 Le Grand Concours participant; 1st in state (2017, 2018, 2019); Platinum (2017), Gold (2018, 2019) national rating
- 2017 French Quiz Bowl, 1st place team

Music

- 2018 Keller Concerto Competition winner (piano)
Performed as soloist with Lafayette Symphony Orchestra in 2019
- 2019, 2020 All-State Honor Band - 1st Bassoon
- 2020 Indianapolis Symphony Orchestra Side-by-Side participant - Principal bassoon
- 2019 IMEA Honor Band (bassoon)
- 2014, 2017 Carmel Debut/Carmel Klavier International Piano Competition participant; 3rd place Ensemble Intermediate (2017), honorable mention Intermediate A-1 (2014)
- Hoosier Auditions (piano) 1st place (2014, 2016)

Research Study

Computer modeling and analysis of vesicular stomatitis virus Indiana serotype ribonucleoprotein motion inside host cells with Dr. Jed Macosko (Department of Biophysics, Wake Forest University) at Research Science Institute (May 2020 - present)

Studying virology/structural biology with Drs. Michael Rossmann and Andrei Fokine in the Department of Biological Sciences at Purdue University (May 2018 - present)

- Studied *Viruses and Human Disease*, 2nd ed., Strauss and Strauss
- Weekly discussion of research articles relating to virology and structural biology
- Learning to use computational software to determine and analyze protein structures

- Currently writing a program to simultaneously align and modify amino acid sequences and protein structures

Extracurriculars/Community Service

Leadership

- 2018-2019 Head coach of Battle Ground Middle School Mathcounts
- Founder and organizer of Harrison High School chemistry team
- Captain of Academic Super Bowl teams
 - Science: 2019, 2020
 - Math: 2020
- 2017-present Captain of Science Bowl
- 2019 Coding lead of Purdue University High Altitude Lafayette Observatory

Extracurriculars

- 2017-present Math Club
- 2017-present Quiz Bowl
- 2019-present Academic Super Bowl
- 2017-2019 French Club
- 2017-2019 French Quiz Bowl
- Peer tutoring
- 2020 Selected as member of Harrison High School National Honor Society
- 2019 “Our Voices Matter” Youth Summit
Representatives from each high school in Tippecanoe County discuss issues faced by young adults locally.
- 2016-present Wabash Valley Youth Symphony (West Lafayette, IN)
Principal bassoonist
- 2017-2018 New World Youth Symphony Orchestra (Indianapolis, IN)
- 2019 Certified Lifeguard/First Aid/CPR/AED

Summer Programs

- 2019 AFA CyberCamp at Ivy Tech Community College
- 2019 Purdue University High Altitude Lafayette Observatory
High-altitude balloon launch
- 2017 AwesomeMath Summer Program at Cornell University
- 2017 Butler University Woodwind Camp

Skills

Programming Languages

Bash, C++, Java, JavaScript, Python (2 and 3), CSS, HTML, LaTeX, MATLAB, R, Ruby, Fortran

Operating Systems

Windows, Linux

Computational Software

Excel, CCP4, Phenix, UCSF Chimera, Mathematica, SeisSol

Research Skills

Structural biology related:

Protein crystallography software

- Python-based Hierarchical Environment for Integrated Xtallography (Phenix) - suite of programs used for automated determination of molecular structures, including molecular replacement, single/multiple anomalous displacement, refinement, and building of structures
- Collaborative Computational Project No. 4 (CCP4) - suite of programs to determine macromolecular structures, including the Crystallographic Object-Oriented Toolkit (for macromolecular model building, model completion and validation)
- Uppsala Software Factory (USF) - also used to determine molecular structures, with the ability to switch between file types

Biological research related:

Pipetting, reagent and medium preparation, and *Caenorhabditis elegans* (an invertebrate model for obesity and aging) maintenance and culturing

Music

Piano (10 years)

Bassoon (6 years)

Languages

Native English, Korean speaker

Proficient in French