

Sea Ryu

PhD. Candidate Researcher
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EDUCATION

Sep. 2017 ~ Present	Konkuk University Department of Aerospace Engineering <i>Advisor: Sangho Kim</i> <i>Ph.D. Student</i> GPA: 4.04 / 4.5	Seoul, Korea
Sep. 2014 ~ Aug. 2017	Konkuk University Department of Aerospace Engineering Thesis: Study of multi-fidelity fluid-thermal-structural analysis tool development for supersonic/hypersonic air vehicle <i>Advisor: Sangho Kim</i> <i>M.S. in Aerospace Information Engineering</i> GPA: 3.92 / 4.5	Seoul, Korea
Mar. 2010 ~ Aug. 2014	Konkuk University Department of Aerospace Engineering <i>B.S. in Aerospace Information Engineering</i> GPA: 3.02 / 4.5	Seoul, Korea

RESEARCH INTERESTS

- Computational fluid dynamics
- Hypersonic flight vehicle
- Quantum Computer Algorithm
- Rarefied Gas Dynamics
- Aerodynamic design

CONFERENCES

1. Sea Ryu, Juhyun Lee, Nadhie Juliawan, Tae Hee Kim, Yung Hwan Byun, Sangho Kim, "Study of Thermal-Fluid Analysis of Pitot-tube", Asian Congress of Structural and Multidisciplinary Optimization 2022, Matsue, Japan (May. 2022) - Oral
2. 이주현, 류세아, 정형석, 김상호, 이재우, 나승혁, "자세각에 따른 멀티콥터용 프로펠러의 공력소음 해석", 한국항공우주학회 2021년도 춘계학술대회, Samchuk, Korea (Jul. 2021) - Oral

3. 류세아, 최다희, 정형석, 김상호, "도심항공교통 디지털트윈을 위한 공력 데이터베이스 구축 개요", 한국항공우주학회 2020년도 추계학술대회, Jeju, Korea (Nov. 2020) - Oral

RESEARCH EXPERIENCES

- Ph.D. Candidate Research Student at Aerospace Artificial Intelligence & Computing Design Lab, Konkuk University, Korea (Jul. 2020 ~ Present) / Research on Rarefied Gas Dynamics Analysis and Quantum Computing
- Team Leader at Aerodynamics, Perigee Aerospace Inc., Korea (May. 2019 ~ Jun. 2020) / Optimization of Rocket Configuration, Turbomachinery CFD, CFD Tool Development, Rarefied Gas Dynamic
- Research Student at Aerospace Artificial Intelligence & Computing Design Lab, Konkuk University, Korea (Sep. 2010 ~ Apr. 2019) / Research Student of Computational Fluid Dynamics

STUDY EXPERIENCES

- **Study on Hypersonic**
 - DSMC Code Development(1D, 2D and Parallelization)
 - Combination Study of DSMC with Quantum Computing
 - Development of Hypersonic Aerodynamic Design Tools
 - Hypersonic Aerodynamics and Re-entry Vehicles
- **Study on Computing**
 - Parallel Computing
 - Quantum Algorithm Development for CFD and DSMC
- **Study on AI-CFD**
 - Adjoint-AI CFD Algorithm for Massive Aerodynamic Database
 - The Possibility of Applying Adjoint Method to the Probabilistic, Phenomenological Models(DSMC)
- **Study on Anti-icing and De-icing based on CFD**
 - Anti-icing and De-icing of pitot tube

AWARDS AND HONORS

- 2012년 제4회 건국대학교 창의설계 경진대회 동상, Konkuk University, Korea (Nov. 2012)
- 2011년 제3회 건국대학교 창의설계 경진대회 입선, Konkuk University, Korea (Nov. 2011)
- 2010년 제2회 건국대학교 창의설계 경진대회 대상, Konkuk University, Korea (Nov. 2010)

PROJECTS

- 항공기용 피토-정압관에 대한 부품 국산화 기술개발 사업, YONGBEEAT, Korea / CFD & Icing Analysis Engineer, Sub-Project Manager (Nov. 2021 ~ Present)
- 민·군 겸용 드론 소음 등급 및 시험평가 절차 표준화 연구, 국방기술품질원, Korea / CFD Engineer (Jan. 2022 ~ Present)
- 전투기 비선형 공력특성 및 동안정성 해석, Korea Aerospace Industries, Korea / CFD Engineer (Jan. 2017 ~ Dec. 2018)
- 전투기 후방동체 항력예측 프로그램 개발, Korea Aerospace Industries, Korea / CFD Engineer (Nov.

2016 ~ Dec. 2018)

- 단거리 공대공 유도무기 개념연구 공력해석, LIG Nex1, Korea / CFD Engineer (Jun. 2016 ~ Mar. 2017)
- 고속 비행 유도탄 공기흡입관구조의 유체-열-구조 통합해석 및 내열구조 최적화, Agency for Defense Development, Korea / Project Manager, Fluid Dynamics Engineer (Aug. 2013 ~ Dec. 2015)
- 스포츠급 경항공기 개발사업, Ministry of Land, Infrastructure and Transport, Korea / CFD Engineer (Sep. 2010 ~ Mar. 2014)

SKILLS AND TECHNIQUES

- CFD Tools: ANSYS, OpenFOAM, SU2 and various open-source and in-house tools
- DSMC Tools: SPARTA and various open-source and in-house tools
- Grid Generation with Gridgen, Pointwise, ANSYS and FLUENT meshing
- CAD Tools: CATIA V5, AUTOCAD, Fusion360
- Programming Language: FORTRAN, C, C++, Python, Objective-C, Swift
- Parallel Computation with MPI, OpenMP, CUDA, OpenACC
- Quantum Computation with IBM-Q and Amazon AWS Braket
- Certificate of Artificial Intelligence Introductory Online Course 2020 of WISET and KOSSA
- Software: MATLAB, Mathematica, Tecplot, PARAVIEW and various post-processing tools