이 경 훈 교수

항공우주공학과
전산설계 실험실

aeronova@pusan.ac.kr
Tel. 051-510-3101

연구분야

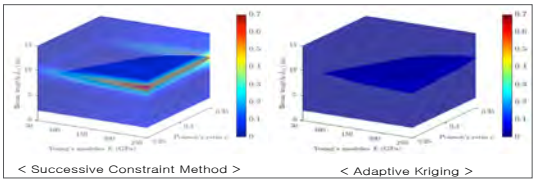
Model Reduction - Reduced Basis Method, Reduced Order Method,
Static Condensation Reduced Basis Element Method
Machine Learning - Gaussian Process Modeling
Digital Twin - In Situ, Real-Time Physics-Based Simulation

수상

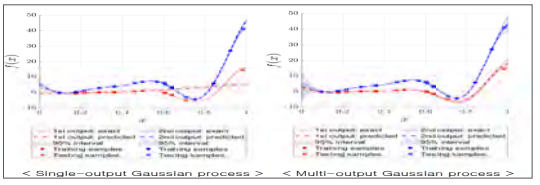
Best Paper Award, Emerging Technologies in Mechanical Engineering, 2018

대표연구

- **Parametric Stability Constant Estimation for A Posteriori Error Analysis**
  - Machine learning-based adaptive Kriging for stability constants estimation to quantify the error of reduced basis approximation
  - More accurate stability constants estimation compared to the existing method, i.e., the SCM



- **Rapid yet Accurate Aerodynamic Coefficients Extrapolation via Multi-Output Gaussian Process**
  - Based on a correlation between similar outputs for extrapolation
  - Applicable to extrapolate wind tunnel data difficult for testing with simulation data



주요 연구실적

- Real-Time, High-Fidelity Linear Elastostatic Beam Models for Engineering Education, Journal of Mechanical Science and Technology, Vol. 35, No. 8, Aug 2021, pp. 3483-3495
- Development of a Gaussian Process Modeling Application for the Prediction of Missile Aerodynamic Coefficients, Journal of Mechanical Science and Technology, Vol. 35, No. 3, Mar 2021, pp. 987-997
- On the Effect of Air-Simulated Side-Jets on the Aerodynamic Characteristics of a Missile by Multi-Fidelity Modeling, Journal of the Korean Society for Aeronautical & Space Sciences, Vol. 49, No. 2, 2021, pp. 95-106
- Application of Gradient-Enhanced Kriging to Aerodynamic Coefficients Modeling With Physical Gradient Information, Journal of the Korean Society for Aeronautical & Space Sciences, Vol. 48, No. 3, Mar 2020, pp. 175-185
- Rapid Estimation of the Aerodynamic Coefficients of a Missile via Co-Kriging, Journal of the Korean Society for Aeronautical & Space Sciences, Vol. 48, No. 1, Jan 2020, pp. 13-21
- Reduced-Order Modeling Applied to the Aviation Environmental Design Tool for Rapid Noise Prediction, Journal of Aerospace Engineering, Vol. 31, No. 5, Sep 2018, pp. 04018056-1-13
- Structural Response Predictions Compared to Material Property Estimates for Structural Integrity Assessment Under Operational Uncertainty, Computers & Structures, Vol. 196, Feb 2018, pp. 49-62

주요 연구과제

- 기계학습 기반 수중함 유체력계수 추정기법 연구, 국방과학연구소, 2년, 1억4천3백8십만원(유체력계수,기계학습)
- 설계기반 미래성형 기술개발 센터, 미래창조과학부, 3년, 54억(스마트 성형, 하이브리드 성형, 디지털 트윈)
- 측방화염 영향 공력 모델링을 위한 프레임워크 연구, 국방과학연구소, 1년6개월, 1억3천만원(측방화염,공력계수,기계학습)

학회 활동

- 항공우주학회 정회원
- 대한기계학회 정회원
- 응용산업수학회 정회원

산학 협력 활동

- 국방과학연구소 수중함 유체력계수 추정 연구
- 국방과학연구소 공력 모델링을 위한 프레임워크 개발
- 동남권 그린 수소항만 조성사업 기획 보고서
- 주식회사 넥스트폼 기술이전(2019.03)