

2026
연구실 소개 자료

백 승 훈



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Biography



SDL



Structure Vibration &
Analytical Dynamics



Data-Driven
Approaches

Mechanical System Design

백 승 훈 / Seunghun Baek



Education

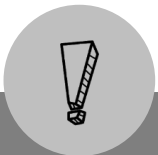
- 2016, Ph.D., Mechanical Engineering, University of Michigan
- 2011, MS, Mechanical Engineering, University of Michigan
- 2009, BS, Mechanical Engineering, Yonsei University

Experiences

- 2016~2020, Research Engineer, Ford Motor Company, USA
- 2015, Intern, Sandia National Lab., USA

Contact Info

- baeksh@pusan.ac.kr
- 기계관 613호 / 051)510-2314



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Structure Vibration &
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Approaches

Members (2026)

Ph.D.

				
표*호	백*민	임*근*	류*영*	유*선*

MS

									
조*진	김*희	전*호	김*완	김*현	최*영	배*서	박*민*	서*민*	최*혁*

BS

		
김*환	신*민	하*형



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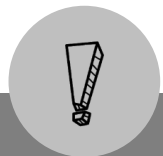


Structure Vibration &
Analytical Dynamics



Data-Driven
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Alumni



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Structure Vibration & Analytical Dynamics



Data-Driven Approaches

Gallery



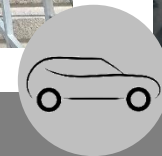
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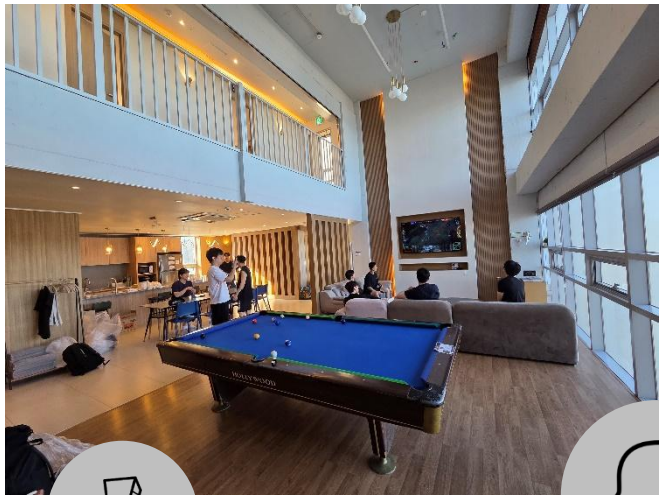
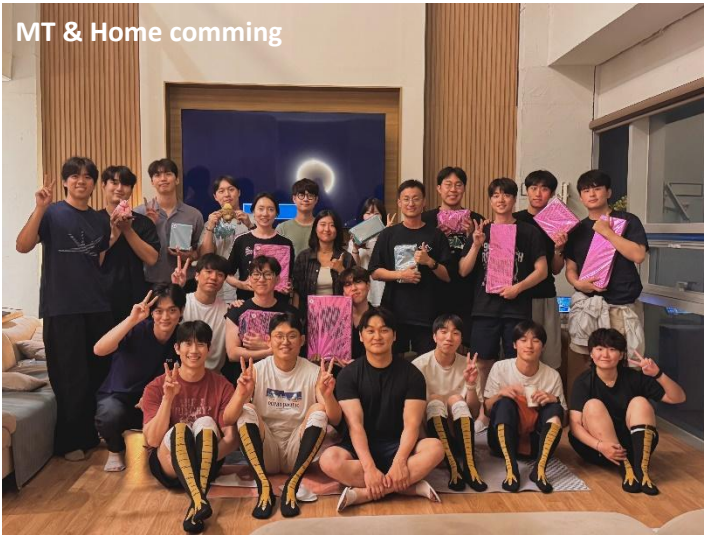


Structure Vibration & Analytical Dynamics



Data-Driven Approaches

Gallery



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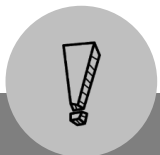
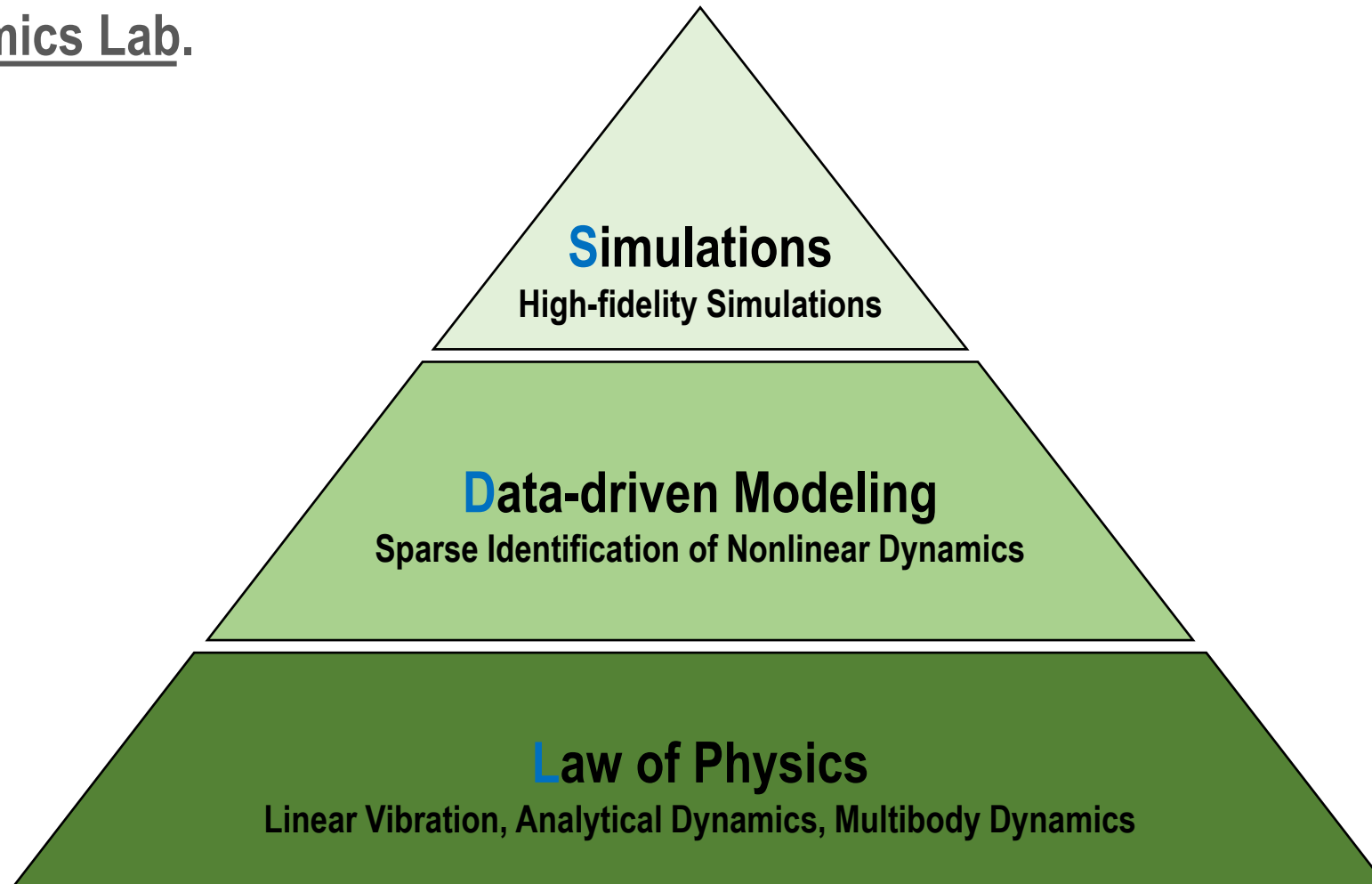
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Structure Vibration & Analytical Dynamics



Data-Driven Approaches



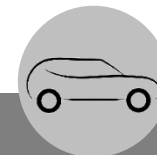
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Data-Driven
Approaches

Why simulation fails?

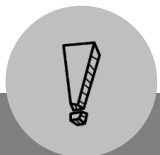
Simulation



Nature



Vs.



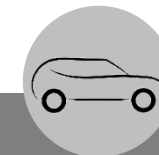
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Structure Vibration &
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Data-Driven
Approaches

Why simulation fails?

Simulation



Vs.

Nature



- **Governing equation**
 - ✓ Weak form
 - ✓ Simplification
 - ✓ **Beyond knowledge**
 - ✓ ...
- **Uncertainty**
 - ✓ Unmeasured
 - ✓ Parameter nonlinearity
 - ✓ Boundary & initial conditions
 - ✓ ...
- **Solver error**
 - ✓ Integration failure
 - ✓ Error stacking
 - ✓ Inefficiency
 - ✓ ...
- **Computing power**
 - ✓ Integration failure
 - ✓ Error stacking
 - ✓ Inefficiency
 - ✓ ...



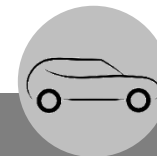
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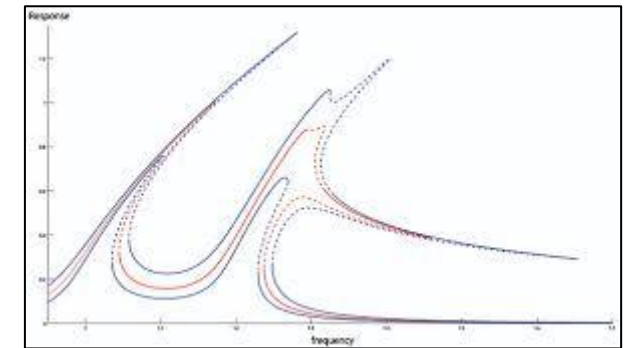
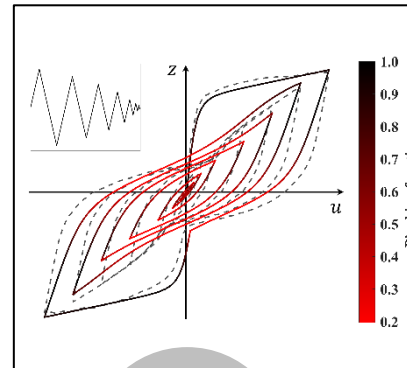
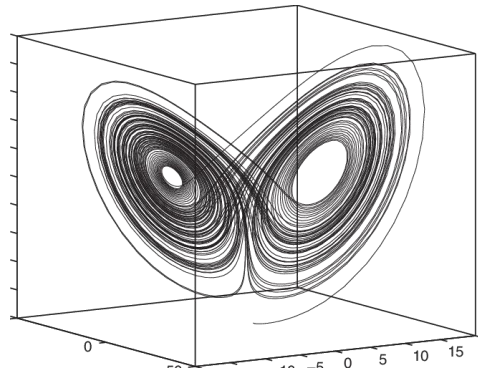
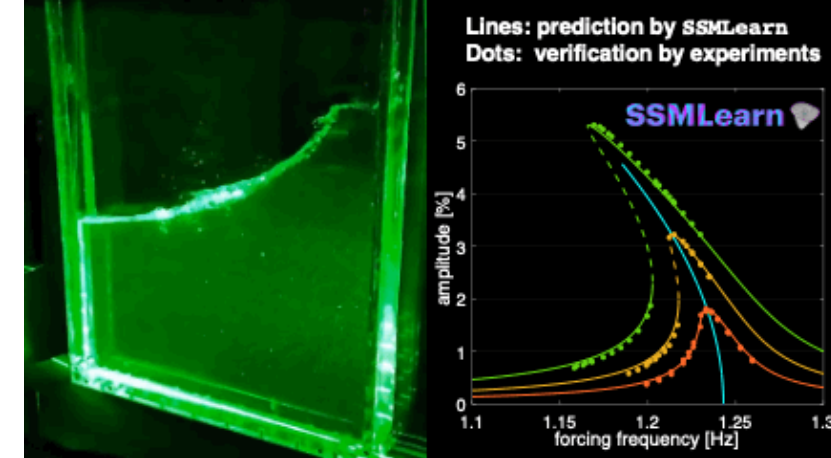
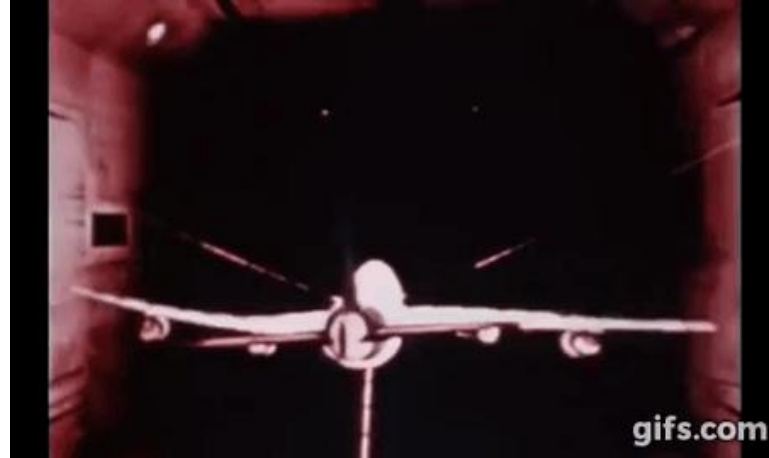


Structure Vibration &
Analytical Dynamics



Data-Driven
Approaches

Complex Nonlinear Dynamic System



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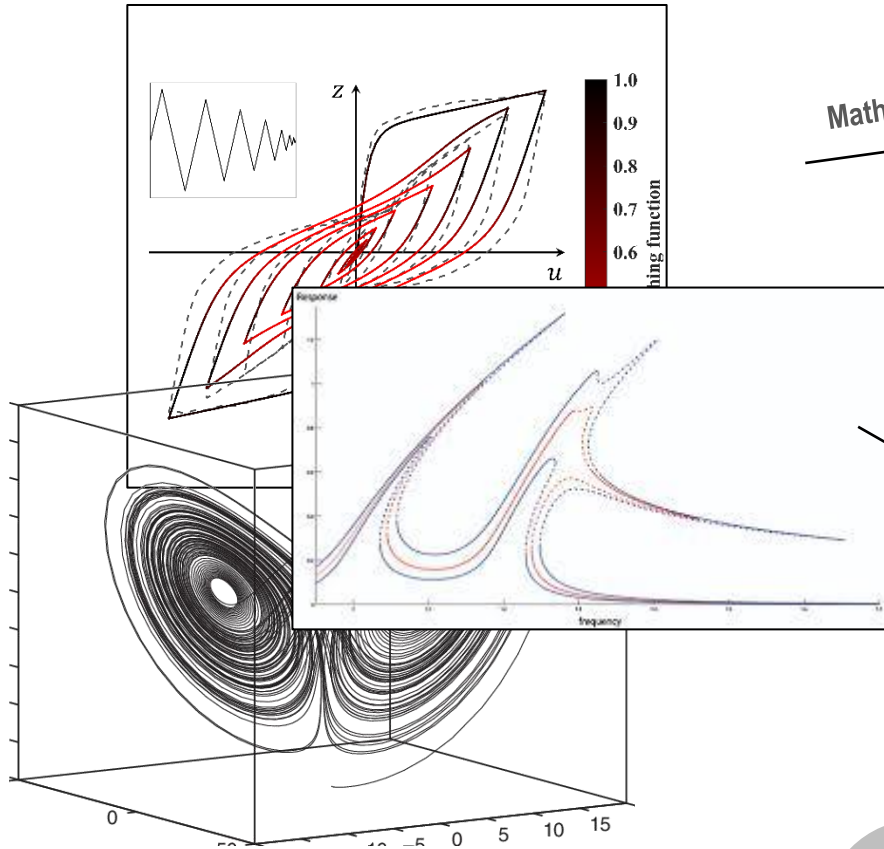


Structure Vibration & Analytical Dynamics



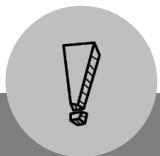
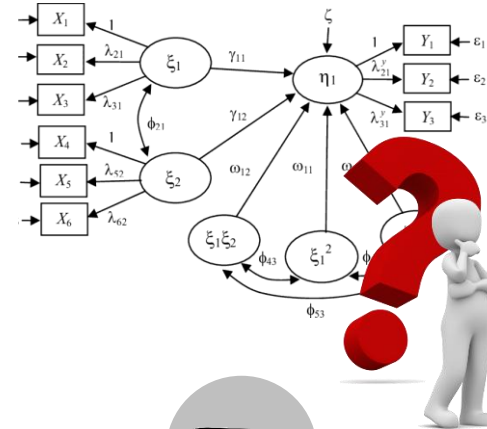
Data-Driven Approaches

Complex Nonlinear Dynamic System



Mathematical Modeling

Data driven



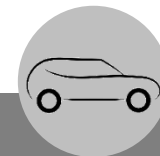
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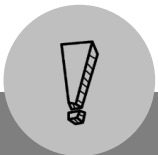
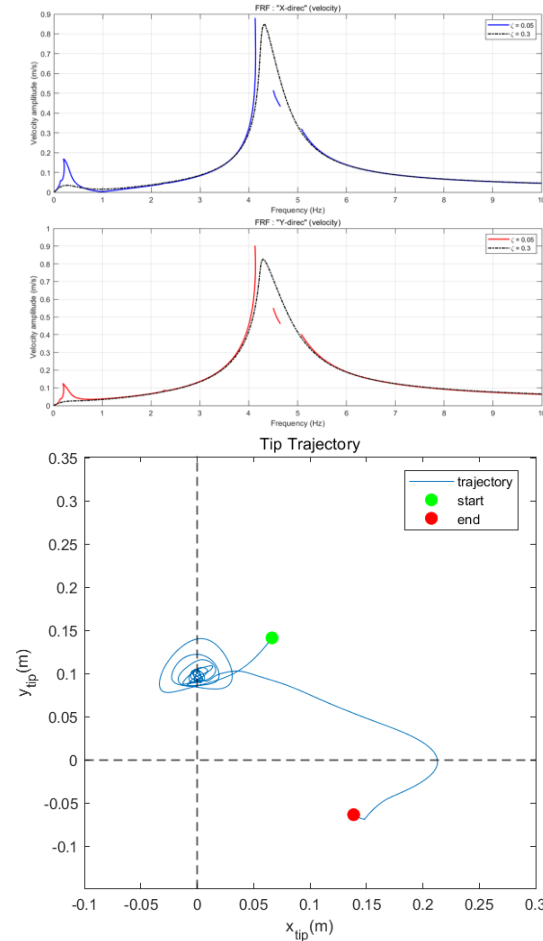
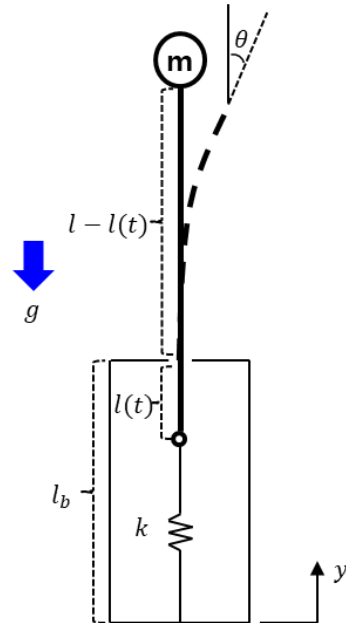
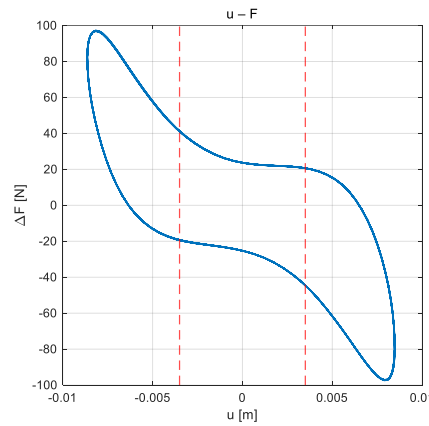
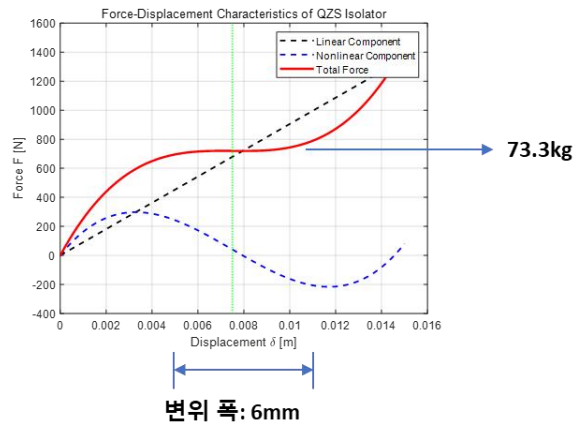
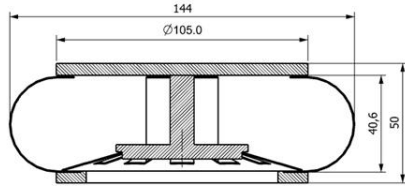
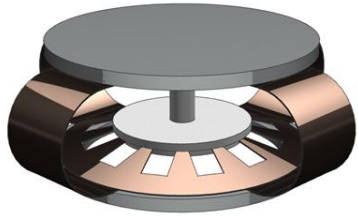
SDL



Structure Vibration & Analytical Dynamics



Data-Driven Approaches



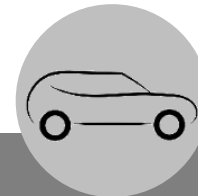
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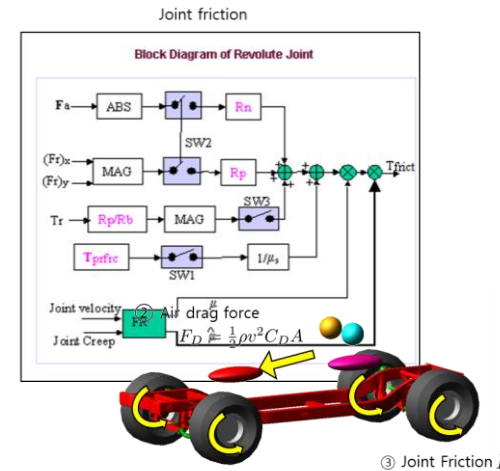
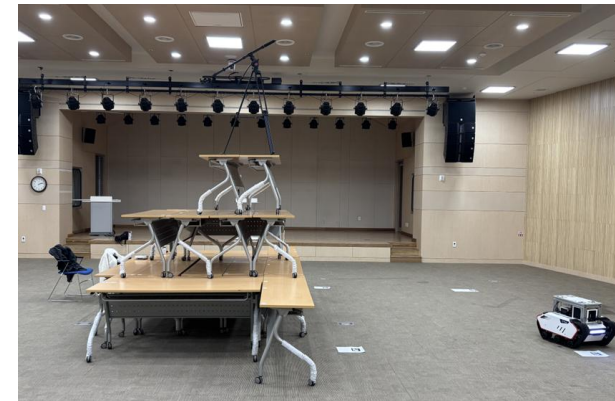
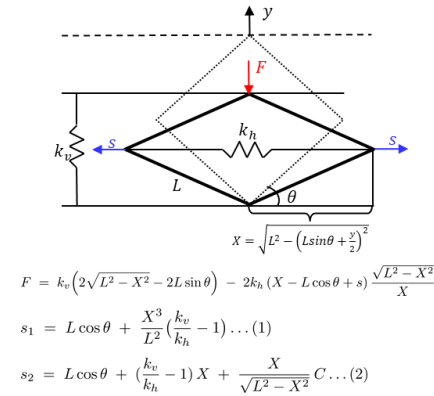
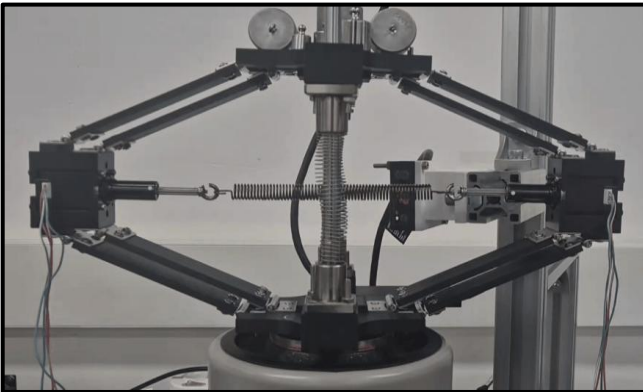
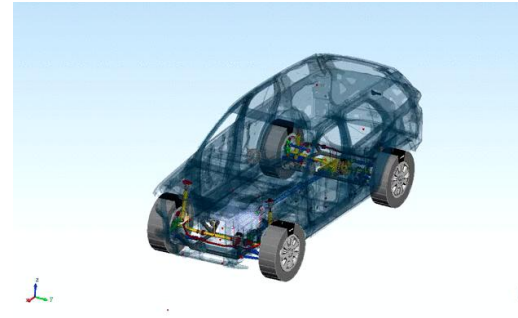
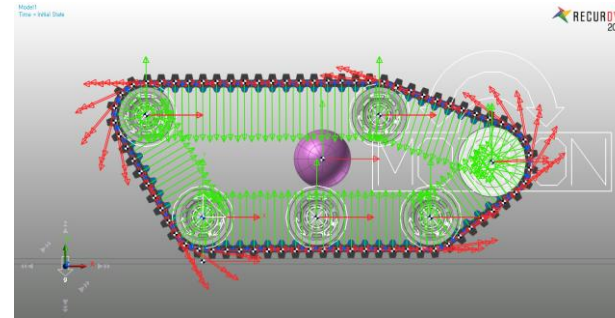
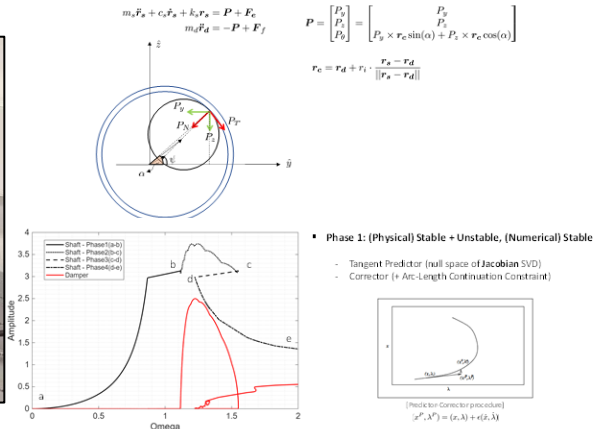


Structure Vibration & Analytical Dynamics



Data-Driven Approaches

Analytical Dynamics



① Tire rolling resistance in .tir file
Road friction in .rdf file

③ Joint Friction F_f



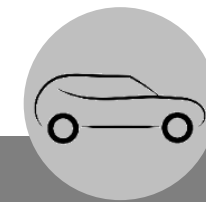
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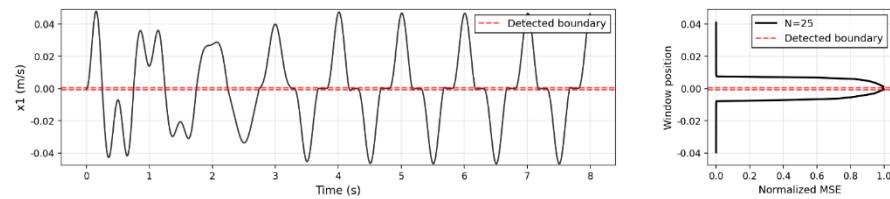
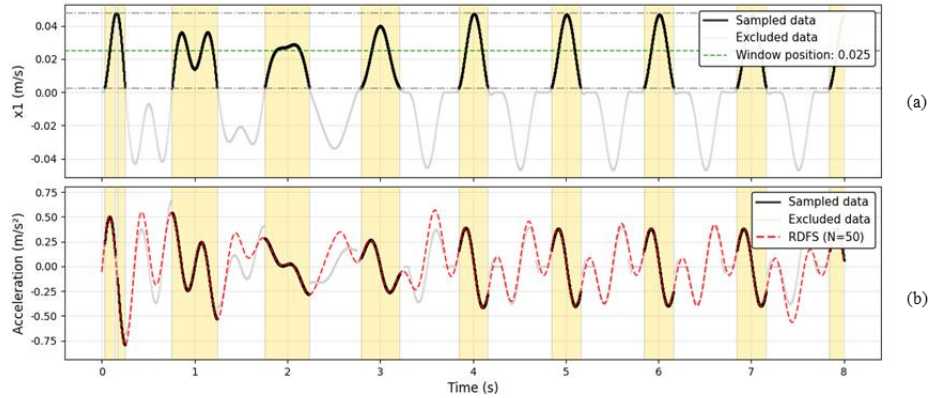
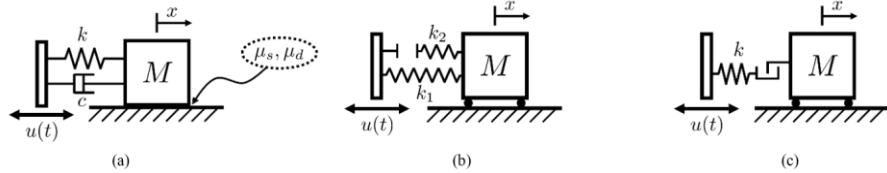


Structure Vibration & Analytical Dynamics



Data-Driven Approaches

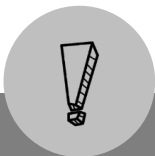
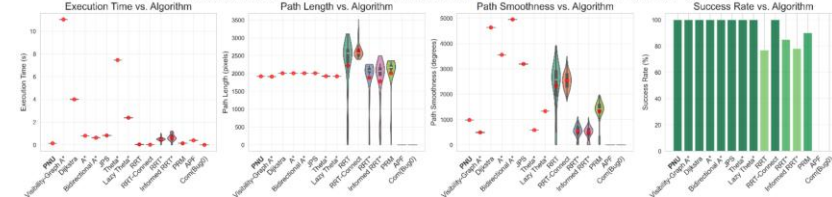
Identification of Hybrid Dynamical System



Path Planning



Fig. 14. Path comparison in construction site environment for four algorithms. (a) A*, (b) Theta*, (c) RRT*, (d) PNU.



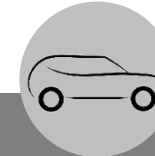
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Structure Vibration & Analytical Dynamics



Data-Driven Approaches

Industry Projects

2024 → | ← 2025 ————— → | ← 2026



LG UFRC 회전체 구동부 가진력 규명 (2차년도)



현대중공업) ROM을 활용한 엔진 구조진동 응답 예측 가속화 기술 개발



현대 Rotem) 고출력 파워트레인 및 인휠 전기구동시스템 개발, 고출력 파워트레인 모듈 기반 차륜형장갑차 기동성능 해석



현대 ROTEM) 차륜형장갑차 파워팩 주행모드 개발 검토



Hanwha Aerospace

한화에어로스페이스) 전투차량 기동 및 운용 대표주행경로 분석



한국연구재단

한국연구재단) 시스템 생애 데이터를 활용한 통합 건전성 예측 및 관리 플랫폼 구축 2차년도



한국원자력연구원
Korea Atomic Energy Research Institute

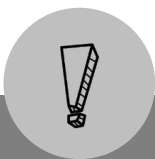
한국원자력연구원) 스조플랫폼, 신핵연료바스켓 내진 해석 평가



한화에어로스페이스) 마찰댐퍼 해석



한화에어로스페이스) 영상기반 K9 탄매 측정



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Industry Projects



LG LG)UFRC 회전체 구동부 가진력 규명 (3차년도)

LG LG) Living QZS를 활용한 신개념 damper 설계

LG LG) Kitchen Door Dynamics 해석



한국연구재단) 시스템 생애 데이터를 활용한 통합 건전성 예측 및 관리 플랫폼 구축 3차년도



한국원자력연구원) 스조플랫폼, 신핵연료바스켓 내진 해석 평가



국방과학기술원) 미래도전과제 - Off Road 자율주행 platform 개발



한화에어로스페이스) 영상기반 K9 탄매 측정

한화에어로스페이스) 영상기반 K9 탄매 측정



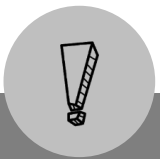
한화에어로스페이스) 이미지 기반 Road wheel 정해석



현대중공업) ROM을 활용한 엔진 구조진동 응답 예측 가속화 기술 개발



현대ROTEM) 차륜형장갑차 체계기동부하분석



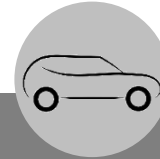
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