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Professor

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RESEARCH INTERESTS

- **Human-Machine Interaction (HMI) in ground and aerial vehicles**, operator cognition modeling in manned/unmanned systems, active safety systems

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA

Ph.D., Department of Aeronautics and Astronautics

September 2007

Major area: **Humans and Automation**, Chair: Professor Eric Feron

Thesis: *Analysis and Detection of Driver Fatigue Caused by Sleep Deprivation*

S.M., Department of Aeronautics and Astronautics

September 2003

Thesis: *Development of a Performance-based Approach for Collision Avoidance and Mitigation*

Seoul National University, Seoul, Korea

B.S., Department of Mechanical and Aerospace Engineering, *summa cum laude*

February 2001

PROFESSIONAL EXPERIENCE

Kookmin University, Seoul, Korea

Professor

September 2021 – present

- Department of Automotive Engineering

Associate Professor

September 2016 – August 2020

- Department of Automotive Engineering

Assistant Professor

March 2013 – August 2016

- Department of Automotive Engineering

Naval Postgraduate School, Monterey, CA

Research Associate Professor

August 2011 – February 2013

- MOVES (Modeling Virtual Environment and Simulation) Institute

National Research Council Fellow & Research Scientist Principal

April 2008 – August 2011

- MOVES Institute & Human Systems Integration Laboratory, Operations Research Department

Massachusetts Institute of Technology, Cambridge, MA

Graduate Research Assistant

September 2001 – August 2007

- Department of Aeronautics and Astronautics & Laboratory of Information and Decision Systems

- Ford-MIT alliance program

- Internships at Ford Motor Company on July 2005 – August 2006, July 2004, July 2003, January 2002

PUBLICATIONS : INTERNATIONAL JOURNAL ARTICLES (* CORRESPONDING AUTHOR)

1. M. Lee, S. Kim, J. Kim and **J. Yang***, "Simulator Study on the Response Time and Defensive Behavior of Drivers in a Cut-in Situation", *accepted in December 2021*, International Journal of Automotive Technology. **SCIE**
2. S. Lee, S. Lim, and **J. Yang***, "Effect of Driving Tendencies on Driving Characteristics in Cut-in and Emergency Braking Situations", *accepted in June 2021*, International Journal of Automotive Technology. **SCIE**
3. H. Han, S. Kim, J. Choi, H. Park, **J. Yang**, J. Kim*, "Driver's avoidance characteristics to hazardous situations: A driving simulator study", Transportation Research Part F: Traffic Psychology and Behaviour, Vol. 81, pp. 522-539, August, 2021. **SSCI**
4. G. Oh, J. Ryu, E. Jeong, **J. Yang**, S. Hwang and S. Lim*, "DRER: Deep Learning-Based Driver's Real Emotion Recognizer", Sensors, Vol. 21, No. 6, pp. 2166, March, 2021. **SCIE**
5. H. Yun, **J. Yang***, "Multi-modal Warning Design for Take-over Request in Conditionally Automated Vehicle", European Transport Research Review, Vol. 12, No. 1, pp. 34, May, 2020. **SSCI**
6. J. Kim, **J. Yang***, "Understanding Metrics of Vehicle Control Take-Over Request in Simulated Automated Vehicles", International Journal of Automotive Technology, Vol. 21, No. 3, pp. 757-770, February, 2020. **SCIE**
7. J. Lee, **J. Yang***, "Analysis of Driver's EEG Given Take-over Alarm in SAE Level 3 Automated Driving in a Simulated Environment", International Journal of Automotive Technology, Vol. 21, No. 3, pp. 719-728, February, 2020. **SCIE**
8. H. Lim, S. Choi, J. Oh, B. Kim, S. Kim, **J. Yang***, "Adaptive Ground Control System of Multiple-UAV Operators in a Simulated Environment", Aerospace Medicine and Human Performance, Vol. 90, No. 10, pp. 841-850, October, 2019. **SCIE**
9. **J. Yang***, S. Choi, and K. Park, "Development of an Operability Evaluation Framework for Controlled Ground Combat Vehicles in a Simulated Environment", International Journal of Automotive Technology, Vol. 19, No.5, pp. 915-922, October, 2018. **SCIE**
10. H. Kim and **J. Yang***, "Take-over Requests in Simulated Partially Autonomous Vehicles Considering Human Factors", IEEE Transactions on Human-Machine Systems, Vol. 47, No. 5, pp. 735-740, October, 2017. **(Recommended by Editor-in-Chief D. Kaber). SCI**
11. S. Lim* and **J. Yang**, "Driver state estimation by convolutional neural network using multimodal sensor data", IET Electronics Letters, Vol. 52, Issue 17, pp. 1495-1496, August, 2016. **SCI**
12. **J. Yang***, M. McCauley, and E. Masotti, "Effectiveness Evaluation of Search and Target Acquisition Training Prototype Using Performance Metrics With Eye-Tracking Data", Military Psychology, Vol. 26, No. 2, pp. 101-113, 2014. **SSCI**

13. C. Kirby, Q. Kennedy, and **J. Yang***, “Helicopter Pilot Scan Techniques During Low-Altitude, High-Speed Flight”, *Aviation, Space, and Environmental Medicine*, Vol. 85, No. 7, pp. 740-744, July 2014. **SCI**
14. **J. Yang*** and J. Coughlin. “In-Vehicle Technology for Self-Driving Cars: Advantages and Challenges For Aging Drivers”, *International Journal of Automotive Technology*, Vol. 15, No. 2, pp. 333-340, March 2014. **SCIE**
15. C. Park*, **J. Yang**, and D. Scheeres, “Optimal Formation Reconfiguration Subject to Hill Three-Body Dynamics by Generating Functions,” *Journal of Guidance, Control, and Dynamics*, Vol. 37, No. 2, pp. 700-705, February 2014. **SCI**
16. **J. Yang***, B. Cowden, Q. Kennedy, H. Schramm, and J. Sullivan, “Pilot Perception and Confidence of Location During a Simulated Helicopter Navigation Task,” *Aviation, Space, and Environmental Medicine*, Vol. 84, No. 9, pp. 952-960, September 2013. **SCI**
17. **J. Yang***, Q. Kennedy, J. Sullivan and R. Fricker, Jr., “Pilot Performance: Assessing How Scan Patterns & Navigational Assessments Vary by Flight Expertise”, *Aviation, Space, and Environmental Medicine*, Vol. 84, No. 2, pp. 116-124, February 2013. **SCI**
18. **J. Yang***, J. Huston, M. Day and I. Balogh, “Modeling Peripheral Vision for Moving Target Search and Detection”, *Aviation, Space, and Environmental Medicine*, Vol. 83, No. 6, pp. 585-593, June 2012. **SCI**
19. J. Sullivan, **J. Yang***, M. Day and Q. Kennedy, “Training Simulation for Helicopter Navigation by Characterizing Visual Scan Patterns”, *Aviation, Space, and Environmental Medicine*, Vol. 82, No. 9, pp. 871–8, September 2011. **SCI**
20. **J. Yang***, Z.-H. Mao, L. Tijerina, T. Pilutti, J. Coughlin and E. Feron, “Detection of Driver Fatigue Caused by Sleep Deprivation”, *IEEE Transactions on Systems, Man, and Cybernetics— Part A: Systems and Humans*, Vol. 39. No. 4, pp. 694–705, July 2009. **SCI**
Andrew P. Sage Best Transactions Paper Award: recognized as the best paper published annually in the *IEEE Transactions on Systems, Man, and Cybernetics*

AWARDS

Andrew P. Sage Best Transactions Paper Award, IEEE SMC Society	October 2010
Research Associateship, National Research Council	April 2008 – June 2011
Korean Government Overseas Scholarship	January 2001 – January 2003
Merit-based scholarships, Seoul National University	January 1997 – January 2000

SELECTED FUNDED RESEARCH (reverse chronological order)

멀미 저감 지표 개발 (Development of indicators to reduce motion sickness)

- Sponsor: (주)현대모비스 (HYUNDAI MOBIS)
- Funding period: Jan. 2022 – Oct. 2022
- 연구책임자 (P.I.)

딥러닝 기반의 MDPS 위치 제어기 최적화 모델 및 HOD 모델 개발 (Development of MDPS position controller optimization model and HOD model based on deep learning)

- Sponsor: (주)현대모비스 (HYUNDAI MOBIS)
- Funding period: Sept. 2021 – Aug. 2022
- 참여연구원

자율주행차 제어권 이수 검증을 위한 운전자 위험 시나리오 및 대응기술 개발 (Development of dangerous scenario and response technology for automated vehicle's take-over process verification)

- Sponsor: (주)현대모비스 (HYUNDAI MOBIS)
- Funding period: May. 2021 – May. 2022
- 연구책임자 (P.I.)

시뮬레이터를 활용한 미래 모빌리티 HMI 이슈 연구 (HMI issues on future mobility using simulation environment)

- Sponsor: 한국연구재단 (National Research Foundation of R.O.K.)
- Funding period: Mar. 2021 – Feb. 2024
- 연구책임자 (P.I.)

COMPLETED RESEARCH PROJECTS

뇌파 기반 부주의 판단에 연동된 저감 장치 개발 (Development of EEG based carelessness reduction device)

- Sponsor: (주)현대모비스 (HYUNDAI MOBIS)
- Funding period: May. 2021 – Dec. 2021
- 연구책임자 (P.I.)

장기주행 운전자의 안전운전을 위한 차량 ICT 융합 첨단안전운전 시스템 및 서비스 개발 (Development of VehicleICT convergence advanced driving assistance system and service for safe driving of longterm driving drivers)

- Sponsor: 산업통상자원부 (Ministry of Trade, Industry and Energy)
- Funding period: May. 2019 – Dec. 2021
- 참여연구원

자동차전용도로/도심로 자율주행 시스템 개발 및 성능평가 (Evaluation of Automated Vehicle UX)

- Sponsor: 산업통상자원부 (Ministry of Trade, Industry and Energy)
- Funding period: May. 2017 – Dec. 2021
- 참여기관 연구책임자 (P.I.)

AI 및 커넥티비티 기술기반 미래모빌리티 위한 운전자 특성 및 감정 고려한 지능형 주행 모드 개발 (Development of intelligent driving mode that reflects driver characteristics and future mobility driving environment based on AI and connectivity technology)

- Sponsor: (주)현대자동차 (HYUNDAI MOTOR COMPANY)

- Funding period: Mar. 2021 – Nov. 2021
- 참여연구원

미래 모빌리티 주행환경 반영된 지능형 주행모드 연구

- Sponsor: (주)현대자동차 (HYUNDAI MOTOR COMPANY)
- Funding period: Apr. 2020 – Nov. 2020
- 연구책임자

실차 및 시뮬레이터 실험 기반의 안전한 제어권 이양을 위한 부분 자율주행차량의 체계적 HMI 기법 연구 (Automated Driving HMI Architecture)

- Sponsor: 한국연구재단 (National Research Foundation of R.O.K.)
- Funding period: Mar. 2017 – Feb. 2021
- 연구책임자 (P.I.)

자율주행자동차 차량-운전자 제어권 전환 안전성 평가기술 및 사회적 수용성 연구 (Safety Evaluation of Take-Over Procedure in Level 3 Automated Vehicle)

- Sponsor: 국토교통부 (Ministry of Land, Infrastructure and Transport)
- Funding period: Apr. 2017 – Dec. 2020
- 참여기관 연구책임자 (P.I.)

주행 시뮬레이터를 이용한 자율주행조건의 인테리어 시스템 연구 (A Study on the Interior System of Autonomous Driving Conditions Using Driving Simulator)

- Sponsor: (주)현대자동차 (HYUNDAI MOTOR COMPANY)
- Funding period: May. 2020 – Nov. 2020
- 연구책임자 (P.I.)

교통노면표시의 차량인간공학적 개선을 위한 시뮬레이터 시나리오 제작

- Sponsor: 디렉션 (D.rection)
- Funding period: Oct. 2020 – Oct. 2020
- 연구책임자 (P.I.)

위험 인지 상황에서 운전자의 행동 특성 연구 (Study on Driver's Behavioral Characteristics under Danger Situation)

- Sponsor: 국립과학수사연구원 (National Forensic Service)
- Funding period: May. 2019 – Nov. 2020
- 연구책임자 (P.I.)

기계학습을 이용한 운전자 특성 반영 모델 개발-2 (Development of driver characteristics model using machine learning)

- Sponsor: (주)현대모비스 (HYUNDAI MOBIS)
- Funding period: Apr. 2019 – Nov. 2019
- 연구책임자 (P.I.)

이상 기후 시 운전자 행동 분석을 통한 주행안전성 개선 방안 연구 (A Study on Improvement of Driving Safety based on Conditions of Driver Behavior Analysis under Abnormal Climate)

- Sponsor: (주)현대자동차 (HYUNDAI MOTOR COMPANY)
- Funding period: Nov. 2018 – Apr. 2019
- 연구책임자 (P.I.)

자율주행 고객 신뢰 위험요인 분석 및 개선방안

- Sponsor: (주)현대자동차 (HYUNDAI MOTOR COMPANY)
- Funding period: Jun. 2018 – Nov. 2018
- 연구책임자 (P.I.)

운전자(시트)를 고려한 R&H 성능 예측 기법 개발 (Ride and Handling Performance Predictors Considering Human Factors)

- Sponsor: 현대 NGV (Hyundai Motor Company)
- Funding period: Apr. 2017 – Apr. 2018
- 연구책임자 (P.I.)

미래자동차/로봇분야의 전문지식을 활용한 자문

- Sponsor: (주)삼성전자 (Samsung)
- Funding period: Jun. 2017 – May. 2018
- 연구책임자 (P.I.)

미래지상체계분석 특화연구실: 제 3 과제 지상전투차량 성능모의와 분석이론 및 적용기법 연구

- Sponsor: 국방과학연구소 (Agency for Defense Development)
- Funding period: Nov. 2013 – Dec. 2018
- 참여연구원

자율주행 레벨 혼재 상황에 따른 복잡도 연구-PART1 (Complexity Research for the Mixed Autonomous Driving Levels)

- Sponsor: (주)현대자동차 (HYUNDAI MOTOR COMPANY)
- Funding period: Jul. 2016 – Jun. 2017
- 연구책임자 (P.I.)

지능기반 무인기 제어 특화연구실: 제 3 과제 복수 무인기 운용자 임무 과부하 최소화를 위한 HMI 기술

- Sponsor: 국방과학연구소 (Agency for Defense Development)
- Funding period: Nov. 2015 – Dec. 2017
- 참여연구원

운전자 상태 정보(3 종 이상)와 주행 환경 분석을 통해 안전과 편의를 제공하는 Connectivity 기반의 개인 맞춤형 지능형 통합 Cockpit 모듈 개발

- Sponsor: 한국산업기술평가관리원
- Funding period: Oct. 2013 – Sep. 2017
- 참여기관 연구책임자

적응형 자율주행 인간-차량 인터랙션의 하향식 규범 모델 연구

- Sponsor: 미래창조과학부/한국연구재단
- Funding period: May. 2014 – April. 2017
- 연구책임자

운전부하 판단 알고리즘 개발을 위한 기초연구

- Sponsor: 현대 NGV
- Funding period: Sep. 2015 – Aug. 2016
- 연구책임자

사물인터넷 환경을 고려한 자율협력주행 차량 운전부하 측정 기법 연구

- Sponsor: 정보통신기술진흥센터
- Funding period: Oct. 2015 – June. 2016
- 연구책임자

미래 교통 환경을 고려한 운전자 피로 측정 기법 연구

- Sponsor: 경찰청
- Funding period: Jul. 2015 – June. 2016
- 연구책임자

자율주행 시대의 탑승자 안전을 위한 Human Factor 연구

- Sponsor: 현대 NGV (Hyundai Motor Company)
- Funding period: Nov. 2015 – Apr. 2016
- 연구책임자

Understanding Optimal Decision Making in War-gaming Using Neurophysiological Measures

- Sponsor: U.S. Army Research Office
- Funding period: Sep. 2012 – Sep. 2015
- 연구책임자(– Feb. 2013); 참여연구원(Mar.2013– Sep.2015)

수동 및 자율주행 차량 운전자 과부하 판단 알고리즘 개발

- Sponsor: 현대 NGV
- Funding period: Dec. 2014 – June. 2015
- 국민대학교 연구책임자

시뮬레이터 기반 지능형 카펫 시스템 운전자 수용성 평가 및 운전자 모델링 기초 연구

- Sponsor: 현대 모비스 주식회사
- Funding period: Dec. 2013 – Nov. 2014
- 국민대학교 연구책임자

지능형 Interface 기반 운전자 UX 선행 개발

- Sponsor: (주)현대모비스 (HYUNDAI MOBIS)
- Funding period: Dec. 2013 – Nov. 2014
- 연구책임자 (P.I.)

주의분산 운전을 예방하기 위한 제스처 기반 인터페이스 개발

- Sponsor: 한국과학창의재단
- Funding period: Sep. 2013 – Feb. 2014
- 연구책임자

UAV 네트워크 기반 실시간 모니터링 시스템 개발

- Sponsor: 국민대학교 우수연구센터 지원
- Funding period: Mar. 2013 – Jan. 2014
- 참여연구원

감성기반 지능형차량 인터랙션에 대한 공학-디자인 융합 연구 기획

- Sponsor: 한국연구재단 기초연구사업 연구회
- Funding period: Aug. 2013 – Dec. 2013
- 연구책임자

Understanding Optimal Decision Making in War-gaming Using Neurophysiological Measures

- Sponsor: ARO (Army Research Office)
- Funding period: Sep. 2012 – Sep. 2015
- Principal Investigator

Integrating Human-Robot Team Interactions in Counter Swarm Scenarios SUMMIT

- Sponsor: LMCO ATL (Lockheed Martin Corporation, Advanced Technology Laboratories)
- Funding period: Oct. 2012 – Sep. 2013
- Co-Principal Investigator (PI: Tim Chung, Ph.D.)

Training Simulation for Complex Cognitive Tasks: Development of Real-Time Instructional Display Utilizing Psychophysiological Markers in Helicopter Navigation Tasks

- Sponsor: NMSO (Navy Modeling and Simulation Office) and ONR (Office of Naval Research)
- Funding period: Dec. 2009 – Dec. 2012
- PI (with Quinn Kennedy, Ph.D.) /Co-PI (PI: Joseph Sullivan, Ph.D.)

Autonomy balancing in Human-UV swarm team interaction model

- Sponsor: USSOCOM (United States Special Operations Command)
- Funding period: June. 2012 – Sep. 2012
- PI (Co- PI: Timothy Chung, Ph.D.)

Performance Shaping Functions of Environmental Stressors: Motion-Induced-Interruptions

- Sponsor: ONR

- Funding period: Jan. 2012 – Dec. 2012
- Co- PI (PI: Michael McCauley, Ph.D.)

Enabling Visual Detection of IED Indicators through Perceptual Learning Assessment and Training

- Sponsor: **TRAC-Monterey** (U.S. Army Training and Doctrine Command Analysis Center)
- Funding period: June. 2012 – Dec. 2012
- Co- PI (PI: MAJ Edward Masotti)

Modeling peripheral vision on target detection probability

- Sponsor: **NMSO** and **MCCDC** (Marine Corps Combat Development Command)
- Funding period: Sept. 2010 – Dec. 2011
- PI (with Imre Balogh, Ph.D.)/Co- PI (PI: Imre Balogh, PhD)

Assessing Human-Systems Performance in a Field Environment

- Sponsor: **USSOCOM**
- Funding period: Oct. 2008 – Sept. 2009
- Co- PI (PI: Nita Miller, Ph.D.)

Drowsy driver detection and countermeasure

- Sponsor: **Ford-MIT alliance**
- Funding period: 2004-2007
- Graduate research assistant (PI: Eric Feron, Ph.D.)

Complex alerting systems development and system-wide impact

- Sponsor: **Ford-MIT alliance**
- Funding period: 2001-2004
- Graduate research assistant (PI: Eric Feron, Ph.D.)

ACTIVITIES

국토교통부 제 2 기 자동차안전하자심의위원회 위원	2021.1 – present
국토교통부 제 10 기 국가교통위원회 위원	2020.5 – present
항공우주학회 국문논문집 편집위원	2020.10 – present
KSAE International Journal of Automotive Technology 편집위원	2019.3 – present
한국자동차공학회 전기전자 ITS 부문위원	2014.6 – present
대한인간공학회 자동차연구분과 이사	2020.1 – 2021.12
과학기술정보통신부 무인이동체 기술개발사업 추진위원회 위원	2019.12 – 2020.5
Stanford University 방문교수	2019.3 – 2020.2
과학기술정보통신부 제 2 기 무인이동체 미래선도 핵심기술개발사업 추진위원회 위원	2018.5 – 2020.5
국토교통부 제 9 기 국가교통위원회 위원	2018.4 – 2020.4
FISITA 2016 STC 위원	2014.9 – 2016.10
Member, Institute of Electrical and Electronics Engineers (IEEE)	2010 – 2011, 2014-present
Member, The Korean Society of Automotive Engineers	August 2013 – present

Member, Ergonomics Society of Korea	August 2013 – present
Program Committee Member & Interactive Session Chair, The 1 st International Conference on Robot Intelligence Technology and Application	December 2012
Human Systems Training Session Chair, NPS MOVES Institute RES (Research and Education Summit)	August 2012
NMSO Session Chair, NPS MOVES Institute RES	July 2011
Program Committee Member, NPS MOVES Institute RES	January 2011 – July 2011
NASA STEM NPS-Hartnell internship advisor	June 2010 – August 2010
Member, American Institute of Aeronautics and Astronautics (AIAA)	2011 – 2012
Student member, American Institute of Aeronautics and Astronautics (AIAA)	July 2004 – July 2005
President, MIT Korean Aero/Astro Graduate Student Association	April 2004 – March 2005
Peer-reviewer of IEEE Transactions on Systems, Man, and Cybernetics, IEEE Transactions on Automation Science and Engineering, IEEE Transactions on Intelligent Transportation Systems, and IEEE Transactions on Vehicular Technology, and Transportation Research Board	2009 – present
Peer-reviewer of SIGCHI	2013

INVITED TALKS (conference *not* included)

1. J. Yang, “제어권 전환 DiL 실험 소개”, 현대자동차 마스터 연구회 기술 자문 세미나, September, 2021
2. J. Yang, “감성평가를 위한 시뮬레이터 기술 활용 방안”, 현대자동차 남양연구소 사운드디자인리서치랩 기술 자문 세미나, September, 2021
3. J. Yang, “인간 중심의 자동차 기술과 연구”, 국민대학교 K*-콜로키움 세미나, September, 2021
4. J. Yang, “자율주행 Mobility-as-a-Service (MaaS) 동향”, KRnet 2021 초청세미나, June, 2021
5. J. Yang, “인간 중심의 자동차 기술과 연구”, 충북대학교 스마트카협동과정, November, 2020
6. J. Yang, “주행 시뮬레이터를 이용한 EV 인테리어 주행 감성 영향”, 현대자동차그룹 2020연구위원 기술포럼, September, 2020
7. J. Yang, “생체 및 차량 데이터 연계 기술 및 연구 동향”, 현대자동차그룹 2020연구위원 기술포럼, September, 2020
8. J. Yang, “자율주행을 준비하는 HMI(Human-Machine Interaction)”, 현대엠엔소프트 기술연구소 UX/UI팀, November, 2018
9. J. Yang, “미래자율주행시대의 HMI 연구”, 현대자동차 시트R&D 심포지엄, November, 2018
10. J. Yang, “자율주행시대를 준비하는 HMI”, 제 12회 미래자동차전자포럼, September, 2018
11. J. Yang, “자율주행기술, 현재와 미래”, 삼성화재 디지털금융리더 과정, July, 2018
12. J. Yang, “자율주행을 준비하는 HMI(Human-Machine Interaction)”, 국립과학수사연구원 교통사고 분석과, June, 2018
13. J. Yang, “Autonomous Driving: AI Platform War-자율주행을 준비하는 HMI”, 제 2회 서울 R&D 포럼, October, 2017
14. J. Yang, “자율주행시대를 준비하는 HMI”, 고려대학교 정보대학, March, 2017
15. J. Yang, “자동차 항공기의 HMI”, ICT Research Conference 2016 & Asia Privacy Bridge Forum, November, 2016
16. J. Yang, “자율주행과 스마트카: 자율주행자동차와 HMI”, 한국정보처리학회 주관 IT 21 Global

Conference, June, 2016

17. J. Yang, “자율주행/인간-자동화 상호작용: 자율주행 HMI 연구동향 소개”, 2016 대한인간공학회 춘계학술대회 전문가 워크샵, June, 2016
18. J. Yang, “인간친화형 자동차의 Human-Machine Interaction”, 연세대학교 바른ICT 연구소, May, 2016
19. J. Yang, “인공지능 어디까지?”, 패널토론, 제 3회 과학기술여성리더스 포럼, May, 2016
20. J. Yang, “자율주행차의 HMI/UX”, 현대자동차 AEES 심포지엄, October, 2015
21. J. Yang, “HVI 연구와 자율주행자동차 개발”, 현대자동차산업연구소 제 13회 부품포럼, March, 2015
22. J. Yang, “미래 자동차의 인간-차량 인터랙션 기술”, 제 2차 미래자동차 메카트로닉스 융합기술 워크숍, 대한전기학회, April, 2014.
23. J. Yang, “Human-Vehicle Interaction in Automotive Area”, Forum of HCI and Interaction Design For Automotive, **Tongji University**, Shanghai, China, March 2014
24. J. Yang, “Human-Vehicle Interaction in Automotive and Defense Area”, **UNIST**, December 2013
25. J. Yang, “휠체스처 컨트롤 인터페이스 개발 및 사용성 평가”, **Hyundai MOBIS**, October 2013
26. J. Yang, “졸음 운전의 위장적 특성에 대한 human-in-the-loop 실험”, **Hyundai MOBIS**, October 2013
27. J. Yang, “HVI and Smart Vehicle”, **Hyundai MOBIS**, August 2013
28. J. Yang, “Human-Vehicle Interaction in Defense Area”, **ADD**(Agency for Defense Development), July 2013
29. J. Yang, “Human-Vehicle Interaction in Automotive and Defense Area”, **ETRI**(Electronics and Telecommunications Research Institute), May 2013
30. J. Yang, “Recent Research at Humans and Vehicle Automation Laboratory”, **INNOSIM**, May 2013
31. J. Yang, “Understanding Optimal Decision Making in War-gaming Using Neurophysiological Measures”, **Joint ARO/TRAC session**, Monterey, CA, October 2012
32. C. Kirby, Q. Kennedy, and J. Yang, “Analysis of Helicopter Pilot Scan Techniques While Flying at Low Altitudes and High Speed”, Helicopter Sea Combat Wing, U.S. Pacific Fleet, **Naval Air Station**, North Island, CA, August 2012
33. J. Yang and Q. Kennedy, “The eyes: Windows into the successful and unsuccessful strategies used during helicopter navigation and target detection.”, **MOVES Research and Education Summit**, Monterey, CA, scheduled on August 2012
34. J. Yang, B. Cowden, Q. Kennedy, H. Schramm, and J. Sullivan, “Understanding cognitive processes of helicopter navigation by characterizing visual scan patterns”, The 4th International Symposium on Brain and Cognitive Engineering, **Korea University**, Seoul, Republic of Korea, May 2012
35. J. Yang, “Understanding cognitive processes of overland navigation by characterizing visual scan patterns-what they believe vs. what they see.”, Electrical Engineering, **KAIST**, Daejeon, Republic of Korea, May 2012
36. J. Yang, “Detection of Driver Fatigue Caused by Sleep Deprivation”, Department of Computer Science, **Yonsei University**, Seoul, Republic of Korea, May 2012
37. J. Yang, “Understanding Visual Perception on Overland Navigation and Target Acquisition”, **MOVES Research and Education Summit**, Monterey, CA, July 2011
38. J. Yang, “Understanding cognitive processes of helicopter navigation by characterizing visual scan

- patterns”, **Seoul National University**, Seoul, Korea, February 2011
39. J. Yang, “Detection of driver fatigue caused by sleep deprivation”, **Systems Technology, Inc.**, Hawthorne, CA, November 2010
 40. J. Yang, “Visual Scan Patterns in Helicopter Navigation”, **MOVES Research and Education Summit**, Monterey, CA, July 2010
 41. J. Yang, “Signal Detection Theory and Warning Systems”, Invited Lecture, Operations Research Department, **Naval Postgraduate School**, Monterey, CA, September 2009
 42. J. Yang, “Human Systems Integration”, Industrial and Systems Engineering, **KAIST**, Daejeon, Republic of Korea, June 2008
 43. J. Yang, “Analysis and Detection of Driver Fatigue Caused by Sleep Deprivation”, Department of Mechanical and Aerospace Engineering, **Seoul National University**, Seoul, Republic of Korea, June 2008
 44. J. Yang, “Analysis and Detection of Driver Fatigue Caused by Sleep Deprivation”, **Ford/MIT alliance meeting**, Dearborn, MI, December 2007
 45. J. Yang, “Detection of Driver Fatigue Caused by Sleep Deprivation”, **MOVES Institute**, Naval Postgraduate School, Monterey, CA, October 2007
 46. J. Yang, “Detection of Human Drowsiness in Simulated Driving”, School of Aerospace Engineering, **Georgia Institute of Technology**, Atlanta, GA, May 2007
 47. J. Yang, Z.-H. Mao, L. Tijerina, T. Pilutti, J. Coughlin, and E. Feron, “Detection of Human Drowsiness in Simulated Driving: Experimental Design and Preliminary Results,” **STISIM Users Group Conference**, Cambridge, MA, October 2006
 48. J. Yang and R. Seiler, “Assessment on Collision Mitigation by Braking,” Active Safety group seminar, **Ford Motor Company**, Dearborn, MI, July 2004
 49. J. Yang, “Aero/Astro at MIT,” Mini **Symposium with Seoul Science High School** Students, Cambridge, MA, February 2004
 50. J. Yang, L. Yang, and E. Feron, “Development of a Performance-Based Approach for a Collision Avoidance/Mitigation System for Automobiles,” **Ford-MIT Alliance meeting**, Dearborn, MI, October 2003
 51. L. Yang, J. Yang, and E. Feron, “Development of a Collision Warning and Avoidance System for Automobiles,” seminar, International Center for Air Transportation, **MIT**, Cambridge, MA, November 2002
 52. L. Yang, J. Yang, and E. Feron, “Performance-based Collision Hazard and Countermeasure Management Research,” Laboratory of Information and Decision Systems, **MIT**, Cambridge, MA, September 2002

ADVISED STUDENTS

- Graduated M.S. students: LT Bradley Cowden (NPS, March 2012, *MORS-Tisdale Award finalist*),
 LT Chris Neboshynsky (NPS, March 2012, co-advisor),
 LT Darren Cutler (NPS, September 2012),
 LT Tyler Rasmussen (NPS, September 2012),
 LCDR Chris Kirby (NPS, September 2012, co-advisor,
Outstanding Thesis, MORS-Tisdale Award finalist)

MAJ Brian Grass (NPS, March 2013),
 LCDR Eric McMullen (NPS, March 2013)
 Se-One Yoon (KMU GSAEK, July 2013, thesis-committee chair)
 Sang Hyoung Lee (KMU GSAEK, July 2013, thesis-committee member)
 Ryu, Dong Woon (KMU GSAEK, February, 2015)
 Choi, Seon Woo (KMU GSAEK, February, 2015)
 Yang, Jin Ho (KMU GSE, February, 2015)
 Kim, Hyung Joon (KMU GASEK, February, 2016)
 Jung, Hyun Bin (KMU GASEK, February, 2016)
 Kim, Sung Lae (KMU GASEK, August, 2016)
 Park, Seung Hyeon (KMU GASEK, August, 2016)
 Ahn, Boo Yong (KMU GASEK, February 2017)
 Hahn, Ji Hyuk (KMU GASEK, February 2018)
 Lim, Hyung Jin (KMU GASEK, February 2018)
 Lee, Min Jae (KMU GASEK, February 2018)
 Yang, Hee Dong (KMU GASEK, February 2018)
 Jeong, Sang Hun (KMU GASEK, February 2019)
 Lee, Ji Won (KMU GASEK, August 2019)
 Yun, Hanna (KMU GASEK, August 2019)
 Han Hyun Seo (KMU GASEK, February 2020)
 Kim, Jae Won (KMU GASEK, February 2020)
 Baek, Sujin (KMU GASEK, February 2020)
 Lee, Seung Joon (KMU GASEK, February 2021)
 Hong, Sara (KMU GASEK, February 2021)
 Kwon, Young Dong (KMU GASEK, February 2022)

- Ph.D. student: Hong, Sara (KMU GASEK, ~February 2025)
- M.S. students: Maeng, Joo Young (KMU GASEK, ~August 2022)
 Lee, Myeong Kyu (KMU GASEK, ~February 2023)
 Kim, Hee Jeong (KMU GASEK, ~February 2023)
 Zuo, Haozheng (KMU GASEK, ~February 2023)
 Park, Jong Woo (KMU GASEK, ~August 2023)
 Hwang, Ji Hyun (KMU GASEK, ~August 2023)
 Kim, Se Han (KMU GASEK, ~February 2024)
 Seo, Won Jun (KMU GASEK, ~February 2024)

TEACHING EXPERIENCE

Kookmin University, Seoul, Korea

Instructor

063342 Automotive Human Factors Engineering

671240 Human-Vehicle Interaction: Control Theory for Humans

062451 Probability and Statistics

March 2013 – Present

671230 Human-Vehicle Interaction: Methods Used in Active Safety Systems

Naval Postgraduate School, Monterey, CA

Co-Instructor

April 2009 – June 2009

OA 3401 Human Factors in Systems Design

Lab-Instructor

January 2009 – March 2009

OA 3402 Research Methods for Performance Assessment, OA 4408 Team Performance and Decision Making

PUBLICATIONS

National Journal Articles

21. J. Maeng, S. Hong and **J. Yang***, "시뮬레이터를 활용한 자율주행차량 시트 배열에 따른 탑승자 감성 평가 연구", 한국자동차공학회논문집, Vol.30, No.3, pp.185-192, March 2022.
22. S. Jeong, J. Kim, S. Hong, J. Lim, M. Lee and **J. Yang***, "차량시뮬레이터 기반 악천후 시 운전자 활동 불편도 평가 연구", 한국자동차공학회논문집, Vol.29, No.6, pp.557-568, June 2021.
23. D. Shin, Y. Lee, **J. Yang**, S. Hong, D. Chang*, "The Elongation Ratio of Korean Pavement Marking Letter Shapes for Legibility", 한국디자인학회, Vol.34, No.2, pp.63-73, May 2021.
24. S. Baek and **J. Yang***, "사용자 관점의 자율주행 기능 인터페이스 정보 제공 실험", 한국자동차공학회논문집, Vol 28, No 8, pp 563-570, August 2020. SCOPUS.
25. H. Han, S. Lee, H. Shim, S. Kim and **J. Yang***, "시뮬레이터 활용 무단횡단 보행자 출몰 시 운전자의 인지반응시간 연구", 한국자동차공학회논문집, Vol 28, No 7, pp 471-481, July 2020.
26. S. Hong, J. Kim, S. Baek and **J. Yang***, "청각 및 촉각 모달리티를 적용한 부분자율주행차량의 제어권 전환 알림방법 연구", 한국자동차공학회논문집, Vol. 28, No. 8, pp 401-411, June 2020.
27. H. Han, S. Jeong and **J. Yang***, "자율주행 시 탑승자의 비운전상태에 따른 운전권 전환 반응 차이에 대한 연구", 한국자동차공학회논문집, Vol. 27, No. 9, pp. 677-686, September 2019.
28. S. Jeong, J. Han, K. Ahn, J. Hwang, Y. Kim, H. Jung, Y. Kang and **J. Yang***, "차량시뮬레이터에서 차량의 핸들링 성능평가를 위한 운전자 생체 신호 도출에 관한 연구", 한국자동차공학회논문집, Vol. 27, No. 5, pp. 353-359, May 2019.
29. J. Lee, H. Yun, J. Kim, S. Baek, H. Han, M. FakhrHosseini, E. Vasey, O. Lee, M. Jeon and **J. Yang***, "SAE 기반 레벨 2 및 레벨 3 부분자율주행자동차의 제어권 전환 상황 단일 모달리티 알림방법 설계", 한국자동차공학회논문집, Vol. 27, No. 3, pp. 171-183, March 2019.

30. S. Jeong, H. Yun, K. Ahn, J. Hwang, Y. Kim, H. Jung, Y. Kang and **J. Yang***, "핸들링 설계 인자 개발을 위한 실차 환경 기반 차량 변수, 운전자 생체 신호 및 주관평가 상관성 연구", 제어로봇시스템학회 논문지, Vol. 25, No. 2, pp. 180-186, February 2019.
31. H. Yun, S. Kim, J. Lee and **J. Yang***, "미국 캘리포니아 자동차관리국 제출보고서 기반 자율주행해제 원인 분석 연구", 한국자동차공학회논문집, Vol. 26, No. 4, pp. 464-475, July, 2018.
32. J. Oh, S. Choi, H. Lim, S. Kim*, **J. Yang**, B. Kim, "복수 무인기 운용을 위한 적응형 지상체 개발 및 운용자 과부하 분석", 한국항공학회논문지, Vol. 21, No. 6, pp. 529-536, December, 2017.
33. H. Lim*, S. Choi, E. Sin, J. Oh, B. Kim, S. Kim, and **J. Yang**, "복수무인기 운용자의 임무과부하지표 효용성 검증을 위한 human-in-the-loop 실험 설계 및 구현", 한국항공우주학회 논문집, Vol. 45, No. 4, April, 2017.
34. Kim, J. Han and **J. Yang***, "승차감 및 핸들링의 정량 정성 지표 상관성 연구 리뷰", 한국 자동차공학회 논문집, Vol. 24, No. 1, pp. 59-66, Jan 2016
35. **J. Yang*** and H. Kim, "운전자 반응을 고려한 성능기반 기법 적용 차선이탈경보시스템 경보 시점 설계 연구", 한국 제어로봇시스템학회 논문지, Vol. 21, No. 11, pp. 1081-1087, Nov 2015
36. **J. Yang** and S. Lee*, "국방 분야의 인간-차량 인터랙션 연구", 한국 CAD/CAM 학회 논문집, Vol. 18, No.3, pp. 155-166, June 2013.

International Conference Proceedings

37. S. Baek, H. Yun and **J. Yang***, "How Do Humans Respond When Automated Vehicles Request an Immediate Vehicle Control Take-over?", Automotive UI'19, Utrecht, Netherlands, September 22-25, 2019.
38. Y. Park, **J. Yang** and S. Lim*, "Development of Complexity Index and Prediction of Accident Risk for Mixed Autonomous Driving Levels", 2018 IEEE International Conference on Systems, Man and Cybernetics, Miyazaki, Japan, October 7-10, 2018.
39. S. Kim and **J. Yang***, "Evaluation of the Effects of Driver Distraction Part 2: Based on Real Vehicle Experiments", 2018 IEEE International Conference on Systems, Man and Cybernetics, Miyazaki, Japan, October 7-10, 2018.
40. S. Kim and **J. Yang***, "Evaluation of the Effects of Driver Distraction Part 1: Based on Simulator Experiments", 2018 IEEE International Conference on Systems, Man and Cybernetics, Miyazaki, Japan, October 7-10, 2018.
41. H. Yun, J. Lee, H. Yang and **J. Yang***, "Experimental Design for Multi-modal Take-over Request for Automated Driving", 20th International Conference, HCI International 2018, Las Vegas, NV, USA, July 15-20, 2018.

42. H. Lim, S. Choi, J. Oh, S. Kim, J. Lee, B. Kim, S. Kim and **J. Yang*** "Comparison Study of Potential Workload Index in a Simulated Multiple-UAV Operation Environment", International Conference on Control Automation and Systems, Jeju, Korea, October 18-21, 2017.
43. **J. Yang***, J. Han, H. Jeong and S. Lim, "Driver State Estimation Based on Dynamic Bayesian Networks Considering Different Age and Gender Groups", ACM Conference on Automotive User Interfaces and Interactive Vehicular Applications, Oldenburg, Germany, September 24-27, 2017.
44. **J. Yang***, J. Han, and J. Park, "Toward Defining Driving Automation from a Human-Centered Perspective", ACM Conference on Human Factors in Computing Systems, Denver, CO, USA, May 6-11, 2017.
45. S. Park and **J. Yang***, "Design of a Mutual Exchange Communication System for an In-Vehicle Network", IEEE Vehicular Networking Conference, Dec 16-18, 2015.
46. **J. Yang*** and S. Kim, "Driving Workload Measurement under Various Traffic Environment and Secondary Tasks", International Automatic Control Conference, Nov 18-20, 2015.
47. **J. Yang*** and S. Kim, "Driving Workload Analysis Using Physiological Metrics", International Automatic Control Conference, Nov 18-20, 2015.
48. **J. Yang***, "Human-Machine Interaction Tool Review in Defense Area: Introduction of AWARE and DaViTo", submitted to 15th International Conference on Control, Automation and System, Oct 13-16, 2015.
49. **J. Yang*** and H. Jeong, "Improvement of Driver-State Estimation Algorithm Using Multi-Modal Information", submitted to 15th International Conference on Control, Automation and System, Oct 13-16, 2015.
50. H. Kim, and **J. Yang***, "Development of an Interactive Driver Module Focusing on Personalized Control Characteristics", accepted to IEEE International Conference on System, Man, and Cybernetics, Oct 9-12, 2015.
51. **J. Yang***, and H. Jeong, "Validity Analysis of Vehicle and Physiological Data for Detecting Driver Drowsiness, Distraction, and Workload", accepted to IEEE International Conference on System, Man, and Cybernetics, Oct 9-12, 2015.
52. D. Ryu, **H. Jeong***, S. Lee, W. Lee and J. Yang, "Development of Driver-State Estimation Algorithm Based on Hybrid Bayesian Network", accepted to 2015 IEEE Intelligent Vehicles Symposium, June 28- July 1, 2015.
53. S. Choi*, **J. Yang**, and K. Park, "Application of Agent-Based Multi-method Simulation Approach to the Simulation Testbed Prototype For Concept Exploration and Requirement Analysis of UGV", European Conference on Modelling and Simulation 2015, May 26-28, 2015.
54. **J. Yang*** and H. Kim, "Design of Collision Warning System Based on Performance-Based Approach that Considers Driver Behavior", The 10th Asian Control Conference 2015, May 31-June 3, 2015.
55. S. Lee, D. Ann, and **J. Yang**, "Mode Confusion in Driver Interfaces for Adaptive Cruise Control Systems", 2014 IEEE International Conference on Systems, Man and Cybernetics 2014, October 5-8, 2014.

56. **J. Yang***, H.J. Yoon, and W.S. Lee, "Preliminary Analysis of Full-Scale Driving Simulator Data for Unmasked Sleepiness Detection", accepted to 2014 IEEE Intelligent Vehicle Symposium, Dearborn, MI, June 8-11, 2014.
57. E. McMullen, B. S. Grass, **J. Yang***, Q. Kennedy, and J. Sullivan, "Effects of UAV Supervisory Control on F-18 Formation Flight Performance in a Simulator Environment", AIAA 2013-4972, AIAA Modeling and Simulation Technologies Conference, Boston, MA, August 19-22, 2013.
58. C. Kirby*, Q. Kennedy, and **J. Yang**, "An Analysis of Helicopter Pilot Scan Techniques While Flying at Low Altitudes and High Speed", AIAA 2013-4690, AIAA Atmospheric Flight Mechanics Conference, Boston, MA, August 19-22, 2013. 2013 AFM student paper competition finalist.
59. **J. Yang**, S. Yoon, and S. Lee*, "Development of wheel-gesture control interface to prevent distracted driving", Asian Conference on Design and Digital Engineering 2013, Seoul, Korea, August 12-14, 2013
60. **J. Yang***, M. Kapolka, and T. Chung, "Autonomy balancing in a manned-unmanned teaming (MUT) swarm attack", The 1st International Conference on Robot Intelligence Technology and Application (RiTA), Gwangju, Korea, 2012. Published in Advances in Intelligent Systems and Computing, Springer.
61. **J. Yang***, Q. Kennedy, J. Sullivan, and R. Fricker, "Scan patterns on overland navigation in varying route difficulty: is total flight hours (TFH) a good measure of expertise?", Human Factors and Ergonomics Society's 56th Annual Meeting, Boston, MA October 22-26, 2012.
62. B. Cowden, **J. Yang***, Q. Kennedy, H. Schramm and J. Sullivan, "Modeling of Helicopter Pilot Misperception during Overland Navigation," AIAA 2012-4491, in AIAA Modeling and Simulation Technologies Conference, Minneapolis, MN, August 13-16, 2012.
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