4단계 BK21사업 자율주행 xEV 혁신 인재 교육연구단

국제학술대회 사전계획서

학회명	25TH International Conference on Human-Computer Interaction (HCI International 2023)		
개최국	덴마크	개최장소	코펜하겐
발표자	종우봉	학번	A2022020
지도교수	이상헌	동행 여부	여
논문 제목	A Study on Mode Awareness of Multi-level Automated Vehicles		
참가목적	논문 발표		
BK사업과의 연구 관련성	다단계 자율주행 차량의 운전자 인터페이스에 관한 연구로 본 BK 사업의 목적과 일치함		

1. 참가 해외연수 기본사항

1. 일정 세부 계획안 (1박)

NO	날짜	세부일정	활동내역
1	2023.7.22	인천(08:20) -> 묵경(09:40) 묵경(13:20) -> 코펜하겐(17:05)	중국국제항공 이용 서울 출발 -> 인천 -> 묵경 -> 코펜하겐 도착
2	2023.7.23	HCII 학술대회 참가	• 학술대회 등록 • Exhibition 참관

3	2023.07.24	HCII 학술대회Tutorial 참가	• T08:Eye Tracking • T14:Human-Centered Explainable AI
4	2023.07.25	HCII 학술대회 참가	• S109: Human factors in designing safer autonomous vehicle • Opening Plenary Session and Conference Reception
5	2023.07.26	HCII 학술대회 논문 팔표 세션 참가	• Poseter presentations (포스터 발표) • S223: Mobile Human Computer Interfaces
6	2023.07.27	HCII 학술대회 논문 팔표 세션 참가	• Poseter presentations • S276: Eye tracking and Biosignals in HCI
7	2023.07.28	HCII 학술대회 논문 팔표 세션 참가	• S305: HCI in Digital Fashion Communication • S337: Designing interactions for human well-being
8	2023.07.29	코펜하겐(7.29, 19:05) -> 묵경(7.30, 11:05)	• 중국국제항공 이용 코펜하겐 출발 -> 묵경
9	2023.07.30	묵경(7.30, 11:05) -> (7.30, 14:15)	중국국제항공 이용 묵경 -> 인천 도작

2. 예산계획안

일련번호	지원 항목	계산내역	지원신청액	비고
1	학회등록비	945 USD	1,296,642원	학회영수증, 학회등록확인서 첨부
2	항공비	2,411,800원	2,411,800원	이티켓, 항공권영수증 첨부
3	숙박비	140 USD/박*7박 = 980 USD	1,261,789원	출장승인서 기준
4	일비	30 USD/일*8일 = 24 USD	309,009원	출장승인서 기준
5	기타			식대는 지원하지 않음
합 계			5,279,240원	

위의 건에 대하여 사전 계획서를 제출합니다.

2023년 07월 21일

자율주행 xEV혁신인재 교육연구단장 귀하

신청인 : 종우봉 (인) 참여교수 : 이상헌 (인)	결재	담 당	검 토	부단장	연구단장

4단계 BK21사업 자율주행 xEV 혁신 인재 교육연구단

국제학술대회 인정 확인서

1. 참가 해외연수 기본사항

학회명	25TH International Conference on Human-Computer Interaction (HCI International 2023)		
출장지명	코펜하겐, 덴마크	출장기간 (학회기간)	2023. 7. 22-29 (2023.7.23.-30)
출장목적	논문 발표		

2. 국제학술대회 기준 충족 여부

구분	기준	충족내역(작성)
참가국가수	4개국 이상	80개국 (2908명)
총 발표논문	20건 이상	1,000편 이상
외국기관 소속 발표자	전체 발표자 중 50% 이상 (국내 개최시 3분의 1 이상)	전체 발표자 중 90% 이상
학회 Web Address	학회 Web Address	https://2023.hci.international/

위와 같이 해외저명학회의 본부가 주관(국내학회와 공동 주관 포함)하고, 국제학술대회 인정 기준 요건을 갖춘 국제학술대회에 참가함을 확인합니다.

신청인 : 이 상 헌 (인)

지도교수 : 이 상 헌 (인)

위와 같이 국제학회 기준 충족을 확인함.

2023년 7월 21일

연구단장 : 이 성 욱(인)

4. 학회등록확인서, 학회등록비영수증

HCI International 2023

23 - 28 July • Copenhagen, Denmark

Conference Invoice/Receipt

Bill to:

Registrant: Yupeng Zhong
Kookmin University
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Registration ID: 13276

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TIN: 26-2867593

Number: 2305277

Date: 10 May 2023

Selected Item	Details	Quantity	Item Cost (US $)	Total Amount (US $)
Conference Registration Student Fee		1	495.00	495.00
T08:Eye Tracking: Applications, Recording, Analytics, Interaction		1	225.00	225.00
T14:Human-Centered Explainable AI		1	225.00	225.00
			Total Amount	**945.00**
			10 May 2023 - Credit Card Payment	**945.00**
			Balance Due	**0.00**

This Invoice/Receipt is VAT exempt according to article 13(1)(3) of the Danish VAT Act.

CANCELLATION OF REGISTRATION
All registration cancellations, due to any reason, received in writing by 3 February 2023 will be fully refunded, less 10% which will be deducted for administrative expenses. For cancellations, due to any reason, received after this date, please see the following cases:
(A) For authors of papers For paper presentation at the Conference and publication in the Proceedings, one registration per submission is required by 6 March 2023 (extended deadline). After this date, submitted papers will be forwarded to the Publisher for inclusion in the Conference Proceedings and no refunds will be made.
(B) For authors of posters For poster presentation at the Conference and publication in the Proceedings, one registration per submission is required by 24 March 2023 (extended deadline). After this date, submitted manuscripts will be forwarded to the Publisher for inclusion in the Conference Proceedings and no refunds will be made.
(C) For non-authors One-half of the registration will be refunded for cancellations received in writing between 3 February and 31 May 2023. No refunds will be made from 1 June 2023 onwards.

CANCELLED TUTORIALS
If, for any reason, a tutorial is cancelled, then the tutorial's registered participants are entitled to transfer their registration to another tutorial or to receive a refund.

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The online payment system is operated through World Conference Services Inc NY, USA and Elavon Inc USA, or PayPal, and the transaction will appear on your credit card statement with description: WORLD CONFERENCE SERVICES ASTORIA US

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국외이용 매입조회

회원명 : 이*헌

접수기간: 2023-05-11 ~ 2023-05-20

카드번호	매출일자	매입일자	국제처리일자	할부전환일자	할부기간	매출종류	결제일자	가맹점명		매출접수번호	승인번호
현지거래금액	미화환산금액	원화환산금액	환가료	현금수수료	청구금액	BC처리환율	현지거래통화	MCC	국가	원매출접수번호	이의신청여부
5584-****-****-0857	2023-05-10	2023-05-15	2023-05-15		0	일시불	2023-06-23	WORLD CONFERENCE SERVI		01202305151I205006682	702646
945.00	954.45	1.292.802.00	3.840	0	1.296 642	1.354.50	미국 달러	7399	미국		

총건수	미화환산금액 합계	원화환산금액 합계	환가료 합계	현금수수료 합계	청구금액 합계
1	954.45	1.292.802	3.840	0	1.296 642

3. 항공권인 보이스, 항공권 영수증

승객정보(Traveller)

승객명(Passenger Name)	**ZHONG/YUPENGMR**
예약번호(Booking Reference)	4LW82B / 1G
항공권번호(e-Ticket Number)	**9999311382837**

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여행사정보(Agency Information)

WHY PAY MORE MA
Agency Phone 02-1577-1245 RTM ONLINE **IATA Number** 17312842

여정 (Itinerary)

편명(Flight) CA 5002 (항공사예약번호:PY9JHV) 클래스(Class): V(일반석)
중국국제항공 **예약상태(Status)** OK

해당 항공편은 인천공항의 제 1여객터미널에서 운항 됩니다.

출발(Departure)	**인천, Incheon Intl Arpt (ICN)**	**22JUL23**	**08:20**	Terminal No : 1
도착(Arrival)	베이징, Beijing Capital Arpt (PEK)	22JUL23	09:40	Terminal No : 3

운임(Fare Basis) VKRFKR1 유효기간 Not Valid Before
수하물(Baggage Allowance) 1Piece(s) Not Valid After 22JAN24

운항항공사(Flight Operated By) **아시아나항공 (OZ** 항공기로 운항하는 공동운항편(Codeshare)입니다.)
아시아나항공 (OZ 항공의 탑승카운터를 이용하시기 바랍니다.)

* 기내 휴대 수하물 및 금지품목 정보 *

기내 휴대 수하물 : **1 Piece**
1st Bag:NO FEE CARRYON HAND BAGGAGE ALLOWANCE

편명(Flight) CA 877 (항공사예약번호:PY9JHV) 클래스(Class): Q(일반석)
중국국제항공 **예약상태(Status)** OK

출발(Departure)	**베이징, Beijing Capital Arpt (PEK)**	**22JUL23**	**13:20**	Terminal No : 3
도착(Arrival)	코펜하겐, Copenhagen Arpt (CPH)	22JUL23	17:05	Terminal No : 3

운임(Fare Basis) QHRCBB 유효기간 Not Valid Before 22JUL23
수하물(Baggage Allowance) 1Piece(s) Not Valid After 22JUL23

* 기내 휴대 수하물 및 금지품목 정보 *

기내 휴대 수하물 : **1 Piece**
1st Bag:NO FEE UPTO11LB/5KG AND UPTO45LI/115LCM

* 위탁수하물 규정 안내 *

적용노선 : ICN - CPH
위탁 수하물 허용량 : **1 Piece**
1st Bag:NO FEE UPTO50LB/23KG AND UPTO62LI/158LCM
2nd Bag:210,800 KRW UPTO50LB/23KG AND UPTO62LI/158LCM
수하물 정책 및 요금 정보 - http://VIEWTRIP.TRAVELPORT.COM/BAGGAGEPOLICY/CA

편명(Flight) CA 878 (항공사예약번호:PY9JHV) 클래스(Class): H(일반석)
중국국제항공 **예약상태(Status)** OK

출발(Departure)	**코펜하겐, Copenhagen Arpt (CPH)**	**29JUL23**	**19:05**	Terminal No : 3
도착(Arrival)	베이징, Beijing Capital Arpt (PEK)	30JUL23	10:00	Terminal No : 3

운임(Fare Basis) HHRFBB 유효기간 Not Valid Before 25JUL23
수하물(Baggage Allowance) 1Piece(s) Not Valid After

* 기내 휴대 수하물 및 금지품목 정보 *

기내 휴대 수하물 : **1 Piece**
1st Bag:NO FEE UPTO11LB/5KG AND UPTO45LI/115LCM

편명(Flight)	**CA 131 (항공사예약번호:PY9JHV)**	클래스(Class): H(일반석)		
	중국국제항공		**예약상태(Status)**	OK
해당 항공편은 인천공항의 제 1여객터미널에서 도착 됩니다.				
출발(Departure)	**베이징, Beijing Capital Arpt (PEK)**	**30JUL23**	**11:05**	Terminal No : 3
도착(Arrival)	인천, Incheon Intl Arpt (ICN)	30JUL23	14:15	**Terminal No : 1**
운임(Fare Basis)	HKRFKR	유효기간 Not Valid Before		
수하물(Baggage Allowance)	1Piece(s)	Not Valid After		22JAN24

* 기내 휴대 수하물 및 금지품목 정보 *

기내 휴대 수하물 : **1 Piece**
1st Bag:NO FEE UPTO11LB/5KG AND UPTO45LI/115LCM

* 위탁수하물 규정 안내 *

적용노선 : CPH - ICN
위탁 수하물 허용량 : **1 Piece**
1st Bag:NO FEE UPTO50LB/23KG AND UPTO62LI/158LCM
2nd Bag:1,043 DKK UPTO50LB/23KG AND UPTO62LI/158LCM
수하물 정책 및 요금 정보 - http://VIEWTRIP.TRAVELPORT.COM/BAGGAGEPOLICY/CA

항공권 정보 (Fare Information)

Issue Date/Place:	24 MAY 2023 / WHY PAY MORE MA / 17312842
Fare Calculation:	SEL CA BJS 155.78CA CPH 523.25CA BJS 661.34CA SEL 182.38 NUC1522.75END ROE1315.93588 XT 33800CN31800ZO304300YQ
Forms of Payment:	CAxxxxxxxxxxxx0857
Fare:	KRW 2003900
Taxes:	KRW 28000BP 369900XT
Total:	KRW 2401800
Carrier Fees/Taxes:	0
Endorsement:	Q/NON-END/PENALTY APPLYQ/NON- END/PENALTY APPLS

가는 편 — 총소요시간 15시간 45분

1 인천 ICN (터미널1) 7월 22일 08:20	2시간 20분 소요	북경 PEK (터미널3) 7월 22일 09:40	중국국제항공 CA5002 공동운항 아시아나	항공사예약번호 PY9JHV 좌석지정	일반석(V) 예약확정
경유	대기 3시간 40분				
2 북경 PEK (터미널3) 7월 22일 13:20	9시간 45분 소요	코펜하겐(덴마크) CPH (터미널3) 7월 22일 17:05	중국국제항공 CA0877	항공사예약번호 PY9JHV 좌석지정	일반석(Q) 예약확정

오는 편 — 총소요시간 12시간 10분

3 코펜하겐(덴마크) CPH (터미널3) 7월 29일 19:05	8시간 55분 소요	북경 PEK (터미널3) 7월 30일 10:00	중국국제항공 CA0878	항공사예약번호 PY9JHV 좌석지정	일반석(H) 예약확정
경유	대기 1시간 5분				
4 북경 PEK (터미널3) 7월 30일 11:05	2시간 10분 소요	인천 ICN (터미널1) 7월 30일 14:15	중국국제항공 CA0131	항공사예약번호 PY9JHV 좌석지정	일반석(H) 예약확정

탑승객 정보 (성인 1명)

번호	이름	성별	생년월일	연령구분	항공요금	택스	유류할증료	수수료	합계
1	ZHONG/YUPENG	남	1998.09.24	성인	2,003,900원	93,600원	304,300원	10,000원	2,411,800원

A Study on Mode Awareness of Multi-level Automated Vehicles

Hwisoo Eom[1], Yupeng Zhong[2], Xintong Hou[2], and Sang Hun Lee[2(✉)]

[1] Korea Intelligent Automotive Parts Promotion Institute, Daegu 43011, Republic of Korea
[2] Kookmin University, Seoul 02707, Republic of Korea
shlee@kookmin.ac.kr

Abstract. Automated vehicles have multiple operating modes, and drivers may be unaware of the mode in which they are driving, leading to mode confusion and potential traffic accidents. To solve this problem, this paper proposes two user interfaces for automated vehicles that are expected to accurately describe vehicle states to reduce mode confusion. Driver-in-the-loop experiments were conducted to examine the possibility of mode confusion in the user interfaces while driving in different automation levels. Results suggest that reducing mode confusion requires a precise and concise user mental model, as well as a user interface designed for simplicity of driver-vehicle interaction, intuitiveness of operation, and consistency.

Keywords: Multi-level Automation · Automated Vehicles · Autonomous Vehicles · Mode Confusion · Situation Awareness · User Interface

1 Introduction

Automated vehicles have the potential to enhance road safety by supporting or supplementing the driver in various situations. Such vehicles are equipped with advanced driver assistance systems (ADAS) and an intelligent co-pilot system to provide appropriate support in all traffic situations, from normal to safety-critical emergency situations. Typically, automated vehicles have several different levels of automation ranging from manual to partially and fully automatic. Although automated systems promise increased safety and reduced human error, a number of substantive human factor challenges must be addressed before these types of automated systems can become a practical reality. These challenges include the potential for negative adaptations occurring due to misunderstanding, misuse, or overreliance on the system or change in attention and distraction from the driving task. In particular, as the driver's role shifts from active vehicle control to passive monitoring of the automated system and environment, the driver's situational awareness in detecting system state changes or perceiving critical environmental factors becomes very important.

Regarding mode confusion in vehicle automation, early studies have focused on adaptive cruise control (ACC) systems [1–5]. Recently, there has been researching on mode confusion in highly automated vehicles [6–11]. Heymann and Degani [6] described a hierarchy of automated driving aids and their functionalities, focusing on ACC and lane

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Ⅰ. 사전 계획서와 함께 제출해야 할 서류

1. 학회프로그램 및 학회 팜플렛

HCII2023 (./index.html)

PROGRAM OVERVIEW

The first three days of the conference (23-25 July) will comprise virtual only parallel sessions for paper presentations with remote only participation and 'in-person' only satellite events. The Opening Plenary Session (25 July) and the parallel sessions that will take place 26-28 July will run as **hybrid** events (i.e. allowing both 'in-person' and remote participation options for presenters and participants).

Times indicated are **"Central European Summer Time - CEST (Copenhagen, Denmark)"**
You can check your local time, using an online time conversion tool, such as www.timeanddate.com (http://www.timeanddate.com/)

Sunday, 23 July 2023

08:00 - 18:00
Parallel sessions with paper presentations (./sunday)

Virtual only

08:30 - 17:30
Tutorials (./tutorials-program)[1]

Workshops (./workshops-program.html)[1]

In-person only

Monday, 24 July 2023

08:00 - 18:00
Parallel sessions with paper presentations (./monday)

Virtual only

08:30 - 17:30
Tutorials (./tutorials-program#day2)[1]

Workshops (./workshops-program.html)[1]

In-person only

Tuesday, 25 July 2023

08:00 - 18:00
Parallel sessions with paper presentations (./tuesday)

Virtual only

08:30 - 17:30
Tutorials (tutorials-program#day3)[1]

Workshops (./workshops-program.html)[1]

In-person only

18:30 - 20:00
Opening Plenary Session

- Welcome
- Introduction
- Awards
- HCI Medal for Societal Impact (./HCI-Medal-for-Societal-Impact.html)
- Keynote Speech
  'Research Challenges to Humanizing Cyberspace' (./keynote-speech)

Hybrid

20:00 – 22:30
Conference Reception

In-person only

Wednesday, 26 July 2023

08:00 - 18:00
Parallel sessions with paper presentations (./wednesday)

Hybrid

All Day
Poster presentations (./poster-presentations.html)

Modalities: 'in-person', 'virtually', or both *

All Day
Student Design Competition Videos presentations

Modalities: 'in-person' and 'virtually'

Thursday, 27 July 2023

08:00 - 18:00
Parallel sessions with paper presentations (./thursday)

Hybrid

16:00 - 18:00
Mentoring Session for PhD students by **Gavriel Salvendy** (./Mentoring-Session.html)

In-person only

All Day
Poster presentations (./poster-presentations.html)

Modalities: 'in-person', 'virtually', or both *

All Day
Student Design Competition Videos presentations

Modalities: 'in-person' and 'virtually'

Friday, 28 July 2023

08:00 - 18:00
Parallel sessions with paper presentations (./friday)

Hybrid

13:30 - 18:00
Design Café (./DesignCafe.html)[1]

In-person only

All Day
Poster presentations (/poster-presentations.html)

Modalities: 'in-person', 'virtually', or both *

All Day
Student Design Competition Videos presentations

Modalities: 'in-person' and 'virtually'

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* The modality of the presentation will be selected by the presenter of each poster submission.

and access the 'in-person' and virtual exhibition.

Conference registered participants that select to attend 'in-person' will be also entitled to enter the conference reception (evening of 25 July) and refreshment breaks between sessions (10:00 - 10:30, 15:30-16:00, 26-28 July).

Participants that select to attend 'in-person' are also kindly asked to make their own arrangements for lunch, during lunch breaks (12:30-13:30, 23-28 July).

Tutorial participation requires additional registration per tutorial.

Workshop participation requires additional registration per workshop.

Design Café participation requires additional registration.