

# Open Online Education As a Means for Improving the Quality of Lives for All

우리 모두의 삶의 질을 향상시키기 위한  
개방된 온라인교육

Sang-Mook Lee  
smlee@snu.ac.kr



 **SNUMGGL**

Seoul National University  
Marine Geophysics &  
Geodynamics Lab

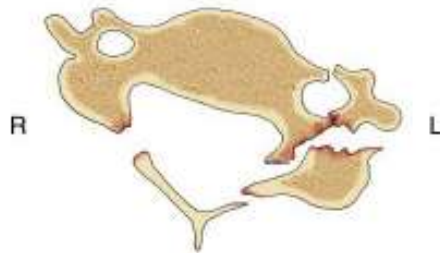
# On the way to Death Valley, 9 years ago



EXH.0005-A

# Completely Paralyzed Neck Down

## Detail of Cervical Injuries - Professor Lee

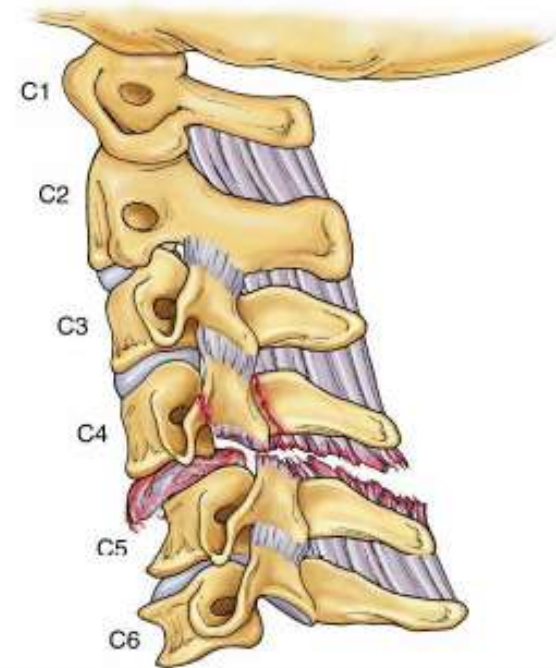


Transverse section of C4 from below



### C4-C5 fracture subluxation

- Less than 25% subluxation
- C4-5 disc space significantly widened
- Complete ligamentous disruption at C4-5 level of facet joints
- Interspinous ligament completely torn
- Longus colli muscles "hemorrhagic, edematous, and badly contused"
- C4 laminar fractures, posteriorly
- C4 spinous process "free-floating," attached to free-floating laminar section bilaterally
- Visible spinal cord superiorly
- Disc disruption, C4-5





**Special input device**  
**Speech recognition**

*“Computer is god’s gift to disabled people.”*  
*“The gap between people is reduced in cyber-space.”*

**Modified vehicle**





*Controlling IPTV with sip-and-puff mouse*



*Using touch screen device with sip-and-puff mouse*

## Major Difficulties (3대 어려움)

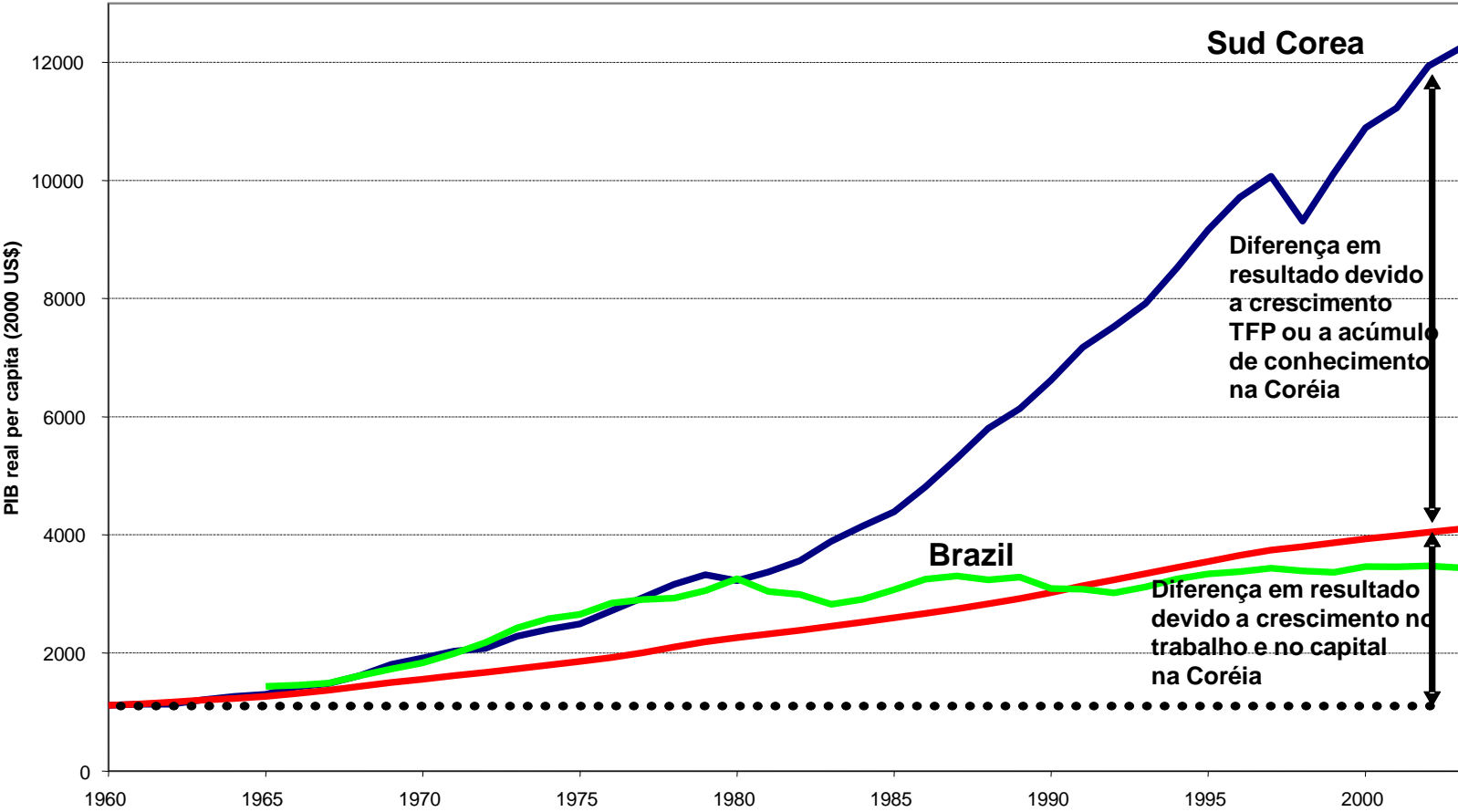
- Economic hardship (경제적인 어려움)
- Inclusion in society (사회참여의 어려움)
- Strain in family (가족간의 갈등)

*Disequality in Education* 이 문제

(좋은 사례: 연세대 신형진)

Source: FRA Report

# GDP per Capita: Brazil versus Korea



- **Korea is a country that has embraced Knowledge Economy according to others.**
- **At the center of KE (지식경제) is ICT.**
- **The same technology we use daily can be used to solve important problems facing our society such as inclusion and diversity.**
- ***SMART WORK & SMART EDUCATION***
- **“Korea is the only country that has emerged from the recipient status to become a benefactor.”**

# Online Education

- **OCW, MOOC, SPOC**
- **For nondisabled people, it's effectiveness debated and is an option**
- **For people with disability, it can be the only solution (장애인에게는 유일한 수단)**
- **Some bold assumptions:**
  - **Online education is a headache for established universities**
  - **99.9% of Koreans are disabled when it comes to listening English lectures**

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# I. Outbound Program (QoLTx)

- **Goal: To provide foundational studies for student with disability across the border**
- **Starting with edX platform and improving accessibility technologically**
- **Making courses at precollege, freshman and sophomore levels**
- **Multilingual**
- **Off-line voluntary services (academic Peace Corps) to developing countries**

## **II. Inbound Program (QoL Channel)**

- **Goal: To provide higher, university-level knowledge for all**
- **Providing service on cable TV channels and via online**
- **Reformatting (translating into Korean) online courses from Harvard, Yale and MIT**
- **Courses from Seoul National University from Colleges of Humanities, Social Sciences, Natural Sciences and Engineering**
- **To be run by donation in public funding**

*Stay Tuned*  
채널고정

# What else can we do?

**수업연계 보조공학기기 개발:  
새로운 산업을 위해 씨를 뿌린다**

서울대 공대 조규진 교수님과  
학생들

## ▶ CtjòCH 수업지원 프로그램 구축 배경

단순한 도구로도 삶의 질의 향상이 가능

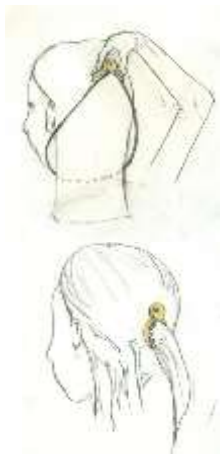
장애 유형별 필요한 보조기기가 매우 다양함



## ↪ One-Handed Hair Binder



- 뇌병변 여성 장애인
- 다른 사람의 도움 없이 머리를 혼자 묶을 수 있도록 설계



One-Handed Hair Binder  
Demonstration video

## ▶ 펜 그립 장갑



- 모터를 사용하지 않고 하나의 와이어만 사용해 간단하고 가벼운 구동으로 펜 고정 장갑 개발
- 와이어가 손가락 끝을 지나가 강한 힘 재현
- 유연한 장갑의 사용으로 사람의 손을 프레임으로 사용하기 때문에 자연스러운 펜 고정 자세 구현
- 손가락을 직접 구부려 펜을 고정하기 때문에 장애 이전의 필기 감각 구현
- 서울대 IRB No. 1212/001-007 승인

### ❖ 수상

- "Glove typed penholder for disabled people", 2012 International Co-Creative Design Competition
- "장애인을 위한 장갑형 필기구 고정 장갑", 최우수상, 서울대학교 함께하는 기술발표회

## ▶ Magic shower

- 간단한 조작 만으로 물이 뿌려지는 방향을 자유자재로 바꿀 수 있어 척수손상 등의 이유로 하지마비를 겪고 있는 장애인의 경우 독립적으로 샤워 가능.



## ▶ 하반신장애인을 위한 보조 수영복



Testing

[ 2012. Fall ] Human Factor Engineering

Interview

Minkyu Cho  
Sooyoung Lee  
Jieun Jang  
Nico Keinath  
Florian Unterstein

## ▶ 모터를 통한 자동식 휠체어 덮개 우산



## ▶ 휠체어거치대

- 창업진행 중
- i-create 공모전참가



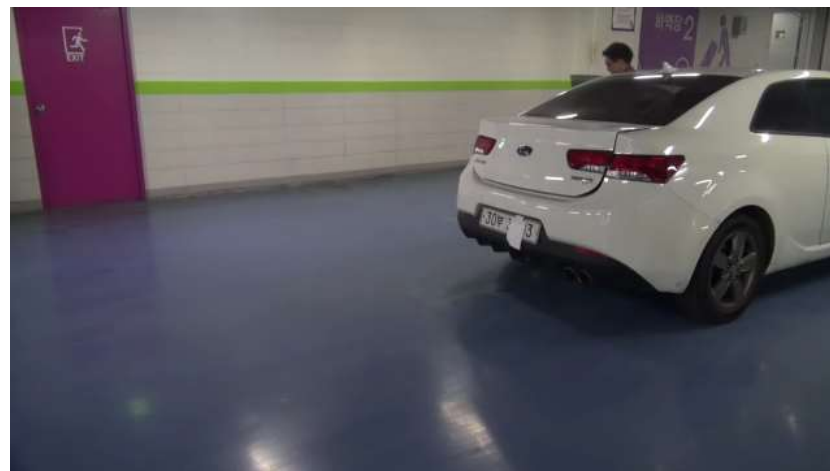
## ▶ 휴대용 휠체어 바퀴 클리너

- 고도화 진행 중



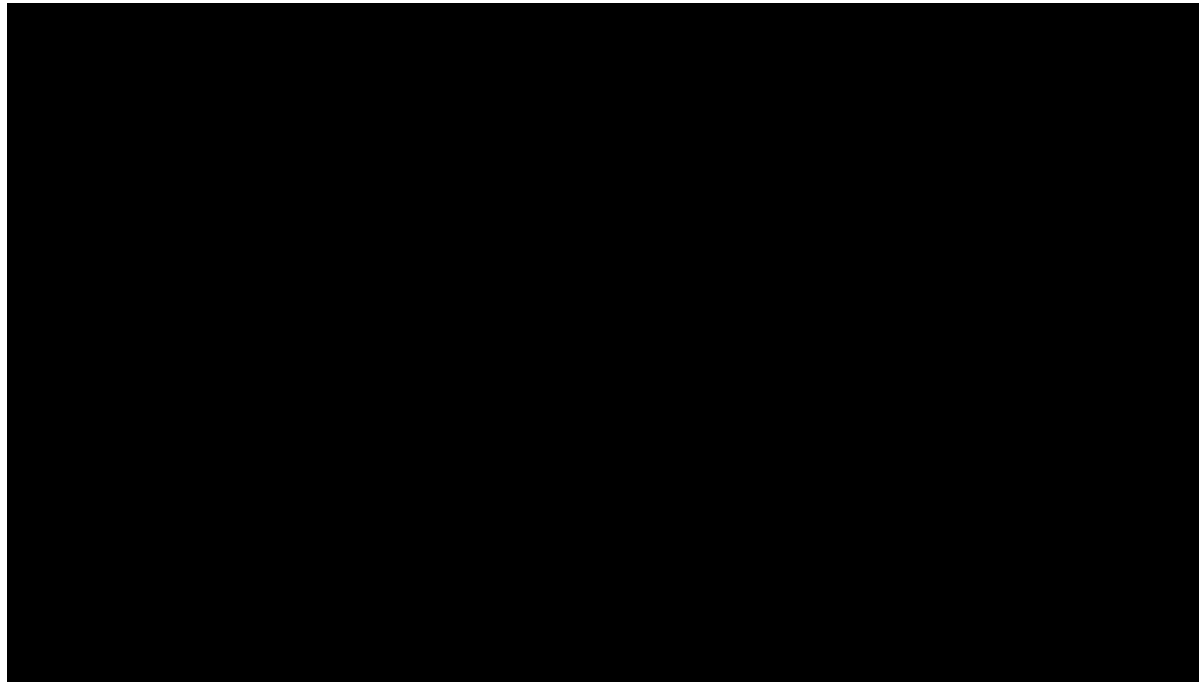
## ▶ 다기능 샤워 휠체어

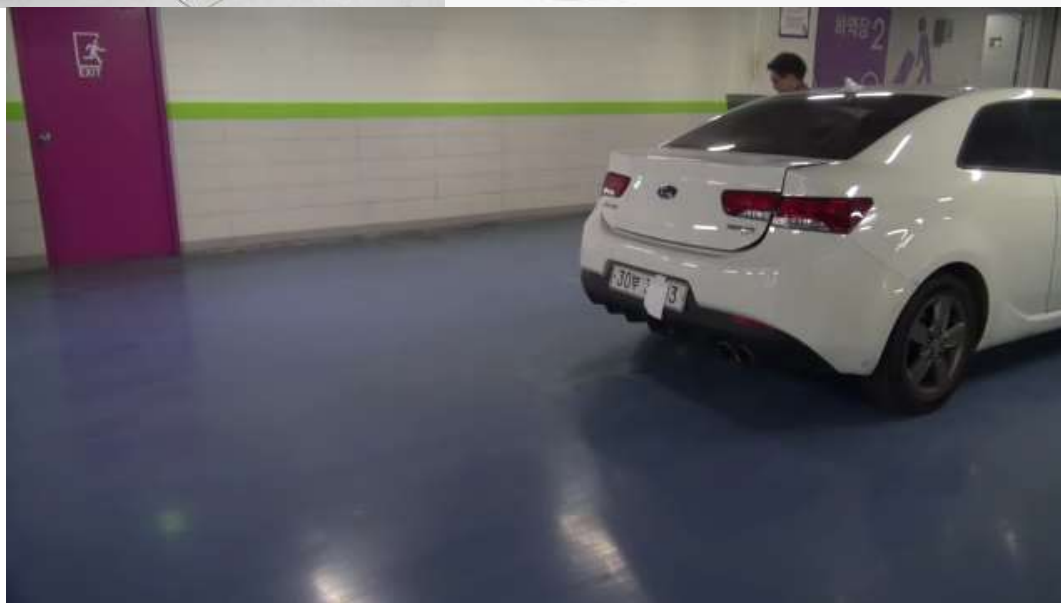
- 창업진행 중
- i-create 공모전 수상



## ▶ 호흡관련 보조기기

- 복부에 강한 힘을 전달하여 척수손상 장애인이 갖는 저혈압 방지
- C5 손상환자에게 노래를 부를 수 있도록 도움







# 나의 희망은... 함께 사는 세상을 위한 기술개발 연구소 건립



사진: Dave Nold



사진: Tim Griffith

# 따뜻한 기술 Venture Capital

# 감사합니다



사진 박준기