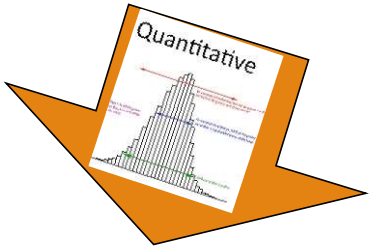
Human Computer Interaction
CS449 – CS549

Week 12

Accesibility – Assignment - Term Project

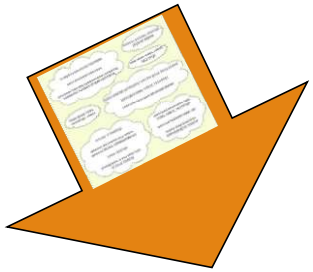
KÜRŞAT ÇAĞILTAY

Term Paper: Research Methods - Data Collection



Quantitative Methods (Statistics)

- Efficiency
- Effectiveness
- Satisfaction



Qualitative Methods (Verbal - Mostly)

- Satisfaction

Term Projects - Important

Project Topic(s)?

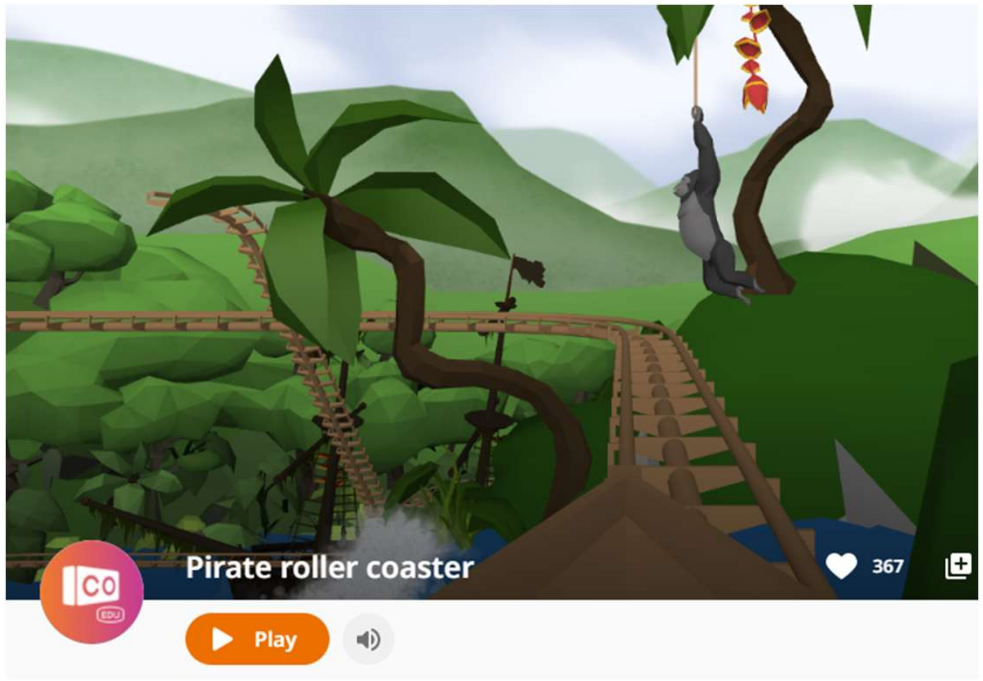
https://docs.google.com/spreadsheets/d/1HOyEmJquaIaic0nQJTFP0I4xTKO-PQ4_TPWt9Z5QdEU/edit#gid=0

Friday, one-to-one meetings with groups.

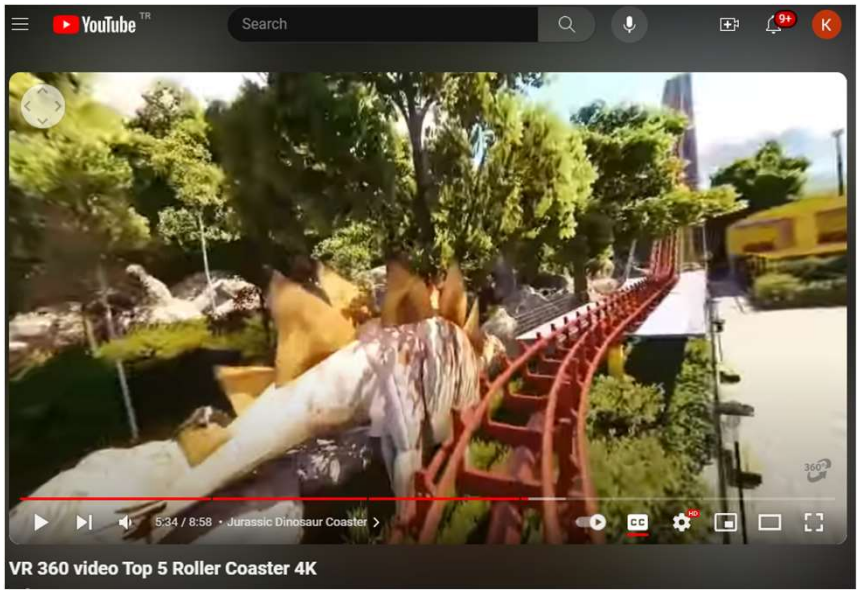
Add your candidate topic(s) to the form and e-mail me.

Assignment: VR Usability

Group Assignment: **with your term project group, Due December 26th**

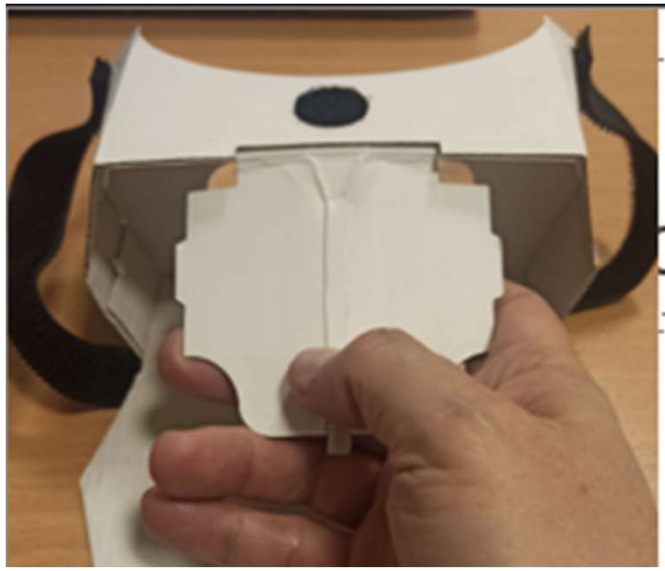


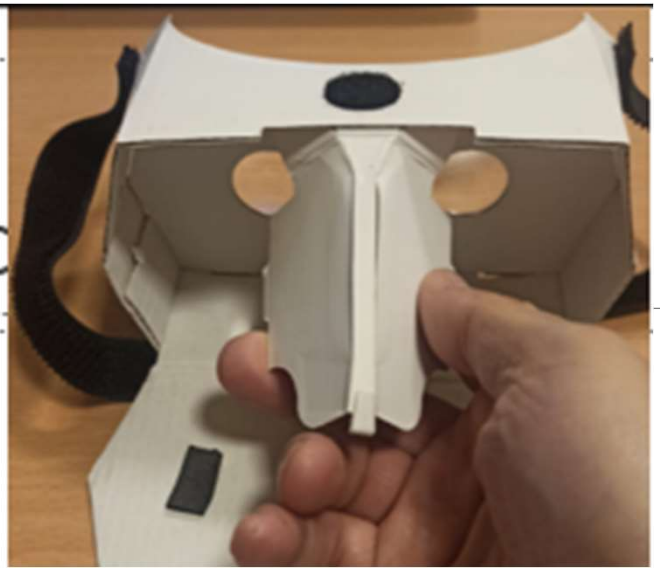
https://edu.cospaces.io/VMX-SBG

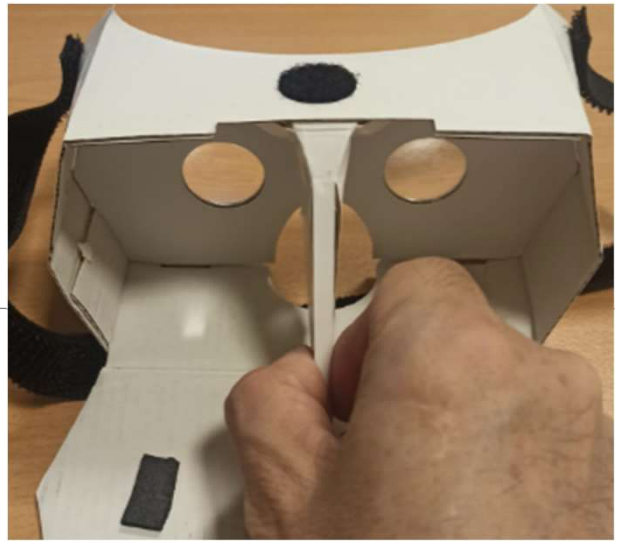


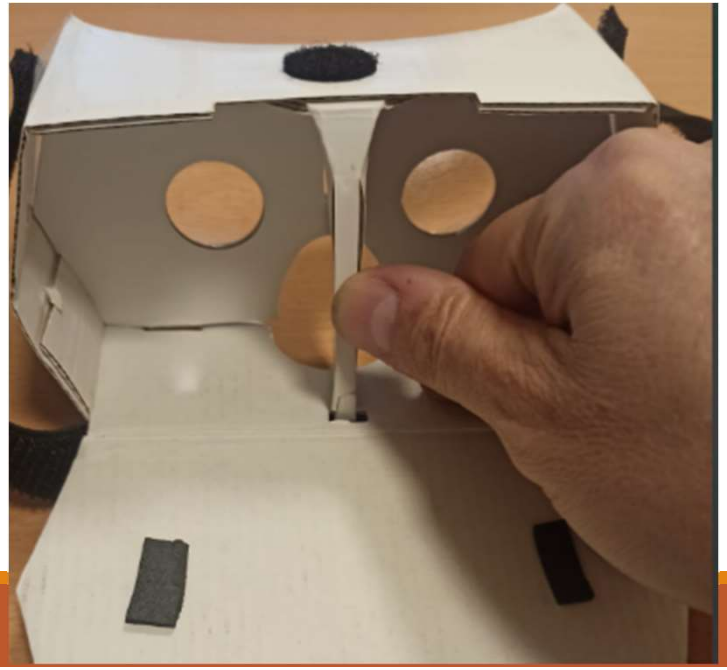
https://youtu.be/hNAbQYU0wpg?si=-Pwn4fKldEnDBku9&t=330

https://youtu.be/kKQgFFz66a4?feature=shared&t=15









1-Try both applications within your group first. Be familiar with application and the test procedure

2- Users: Prepare one persona for your target user group. Find **minimum 4 users** to test both applications. Keep gender and background balance. Make sure they have **no** previous VR experience. Before the test collect demographics data from each user.

3- Task: Ask them to watch both VR applications. Task order is important, if the first user watches Application-1 first, the second user has to watch Application-2 first.

4- Context: Conduct the test while the end-users sitting in a quiet place

5- Tool: Conduct the test with the same mobile phone for all users.

6- During the test (Quantitative and Qualitative data): Record reactions of users during the test.

7- Post interview (Qualitative data): Prepare interview questions to compare and assess the level of users' preferences in the two Virtual Reality (VR) roller coaster applications. Evaluate factors contributing to immersion and identify strengths and weaknesses in creating a captivating VR experience.

8- Post-test (Quantitative data): Ask subjects to complete SUS (System Usability Scale) for both applications (One for YouTube and one for CoSpaces). Use English version of it. (It is on SuCourse, Week-10)

Accessibility (In Turkish Erişilebilirlik)

- Vision, Hearing, Physical and Mental Disabilities
- International Standards: WCAG
- Accessible Information System Design

Accessibility

- Any product, service, technology or medium is accessible and usable by anyone.
- Elimination of factors that may prevent everyone from participating in life activities.
- It's not a recommended choice, it's a legal obligation.

Accessibility – Legal Issues

- **Prime Ministry : Interoperability Principles Guide**
- It is aimed to present the information and services through the website and other alternative channels in such a way that the interfaces determined for the users can be easily used by all members of the society and that additional commercial software that may be required by the user will be kept to the lowest possible level.

- **TC. Başbakanlık : Birlikte Çalışılabilirlik Esasları Rehberi**:

"Bilgi ve hizmetlerin internet sayfası ve diğer alternatif kanallardan, kullanıcılar için tespit edilen arayüzlerin toplumun tüm fertleri tarafından kolay kullanılabilecek ve kullanıcı tarafında gerekli olabilecek ek ticari yazılımları mümkün olan en alt seviyede tutacak şekilde sunumu hedeflenmektedir."

Why Accessibility?

According to the Disability Survey*

12% of Turkey's population is disabled.

420,000 visually impaired,

3 million hearing impaired

Population aged 65 and over, 6% of total population

* Devlet Planlama Teşkilatı Müsteşarlığı ve Devlet İstatistik Enstitüsü Başkanlığı

İbrahim Elibal – Total Blind https://youtu.be/JSlSYRK6OdY

Accessibility in the World

- **United States, "Section 508 of the Rehabilitation Act" requires websites to be accessible**

Although approaches to accessibility vary from country to country, ISO/IEC 40500:2012 is an international standard

Example: Target Store

- In May 2005, the Web site was analyzed.
- Problems have been identified.
- «I can't shop»
- In January 2006, Target rejected the change.
- The Association of the Visually Impaired filed a lawsuit.
- 6 Million dollars fine

WCAG 2.2 (Web Content Accessibility Guidelines)

- ISO/IEC 40500:2012 standard
- 61 Criteria in WCAG 2.0
  - 3 Levels: A (25 criteria), AA (13 criteria) ve AAA (23 criteria)
  - A-basic; AA-suggested; AAA- ideal

  - TSE – Turkish standard (TSE K 201391512)

WCAG – A Level

- Alternatives to audio and video elements (subtitles, transcripts) should be available.
- Textual alternatives of the contents should be given (Alt Text)
- Audio elements must be controllable by users.
- Actions must be accessible via keyboard.
- The contents must be sorted logically.

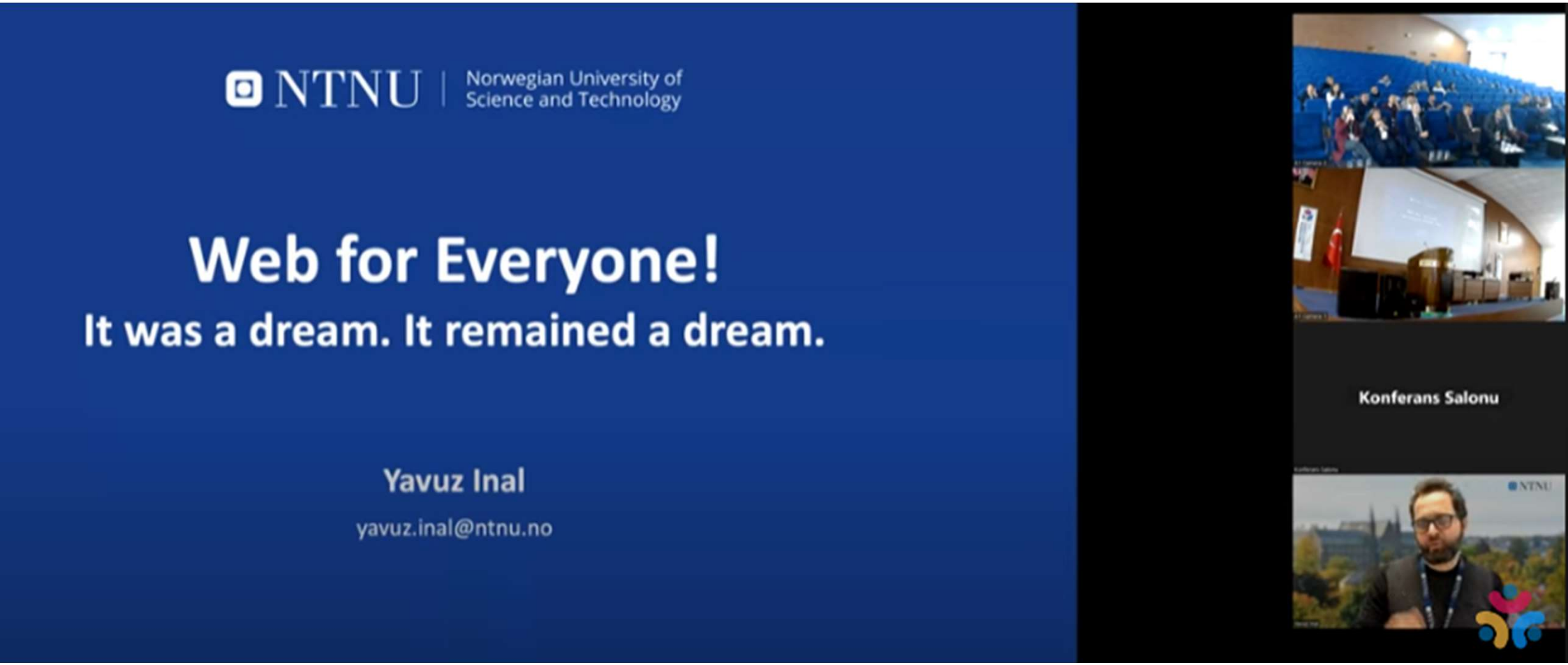
WCAG – AA Level

- Live broadcast subtitles.
- Audio descriptions for video assets (Transcriptions)
- The cursor must be visible and distinguishable.
- In transactions with legal or financial consequences, the rate at which users make mistakes should be reduced.

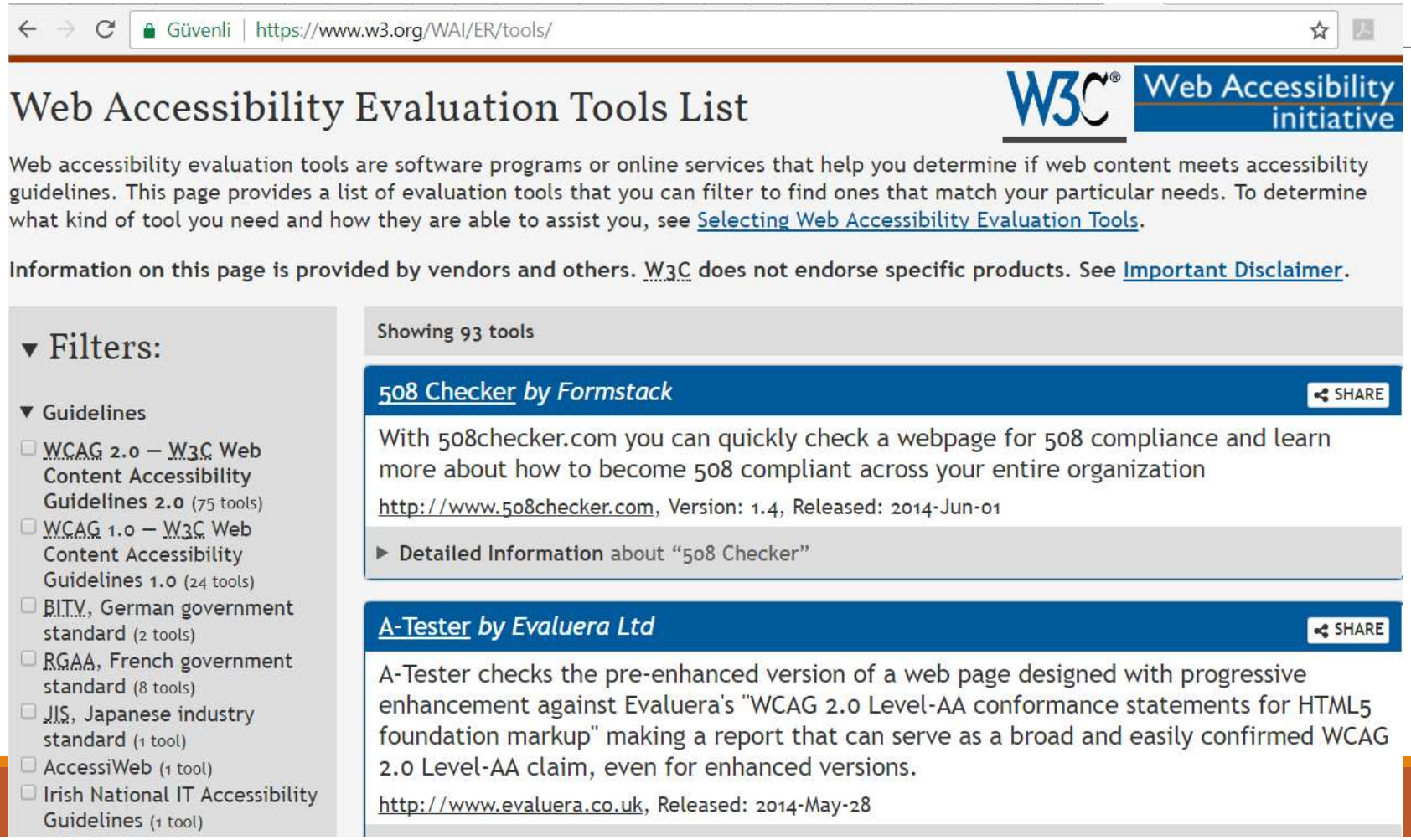
WCAG – AAA Level

- Sign language translation of audio content.
- Detailed alternatives of video elements.
- Internet sites should not contain items that flash more than 3 times a second.

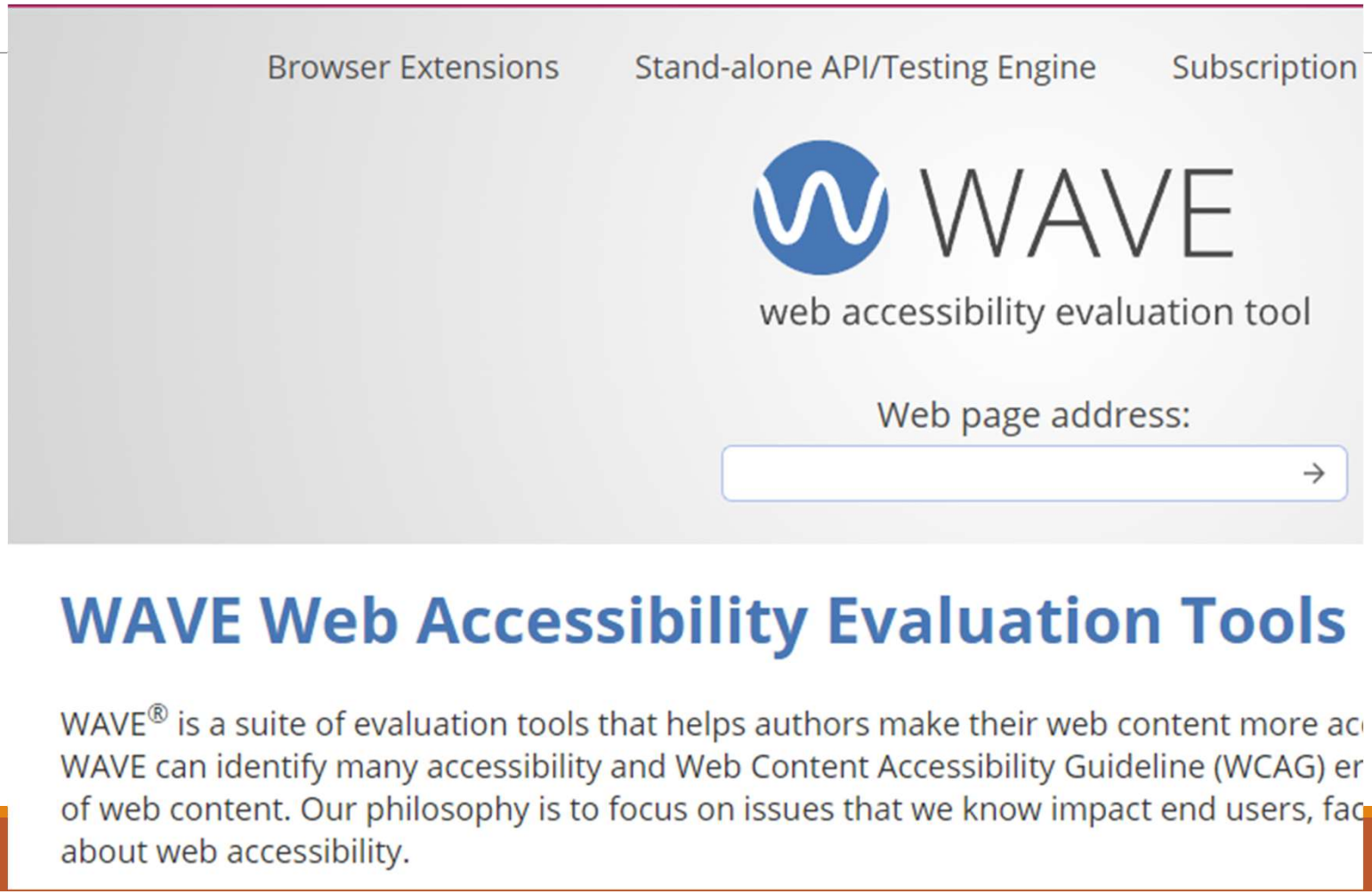
For details on WCAG, revisit Dr. Yavuz İnal's talk



W3 Resources - www.w3.org/WAI/ER/tools/

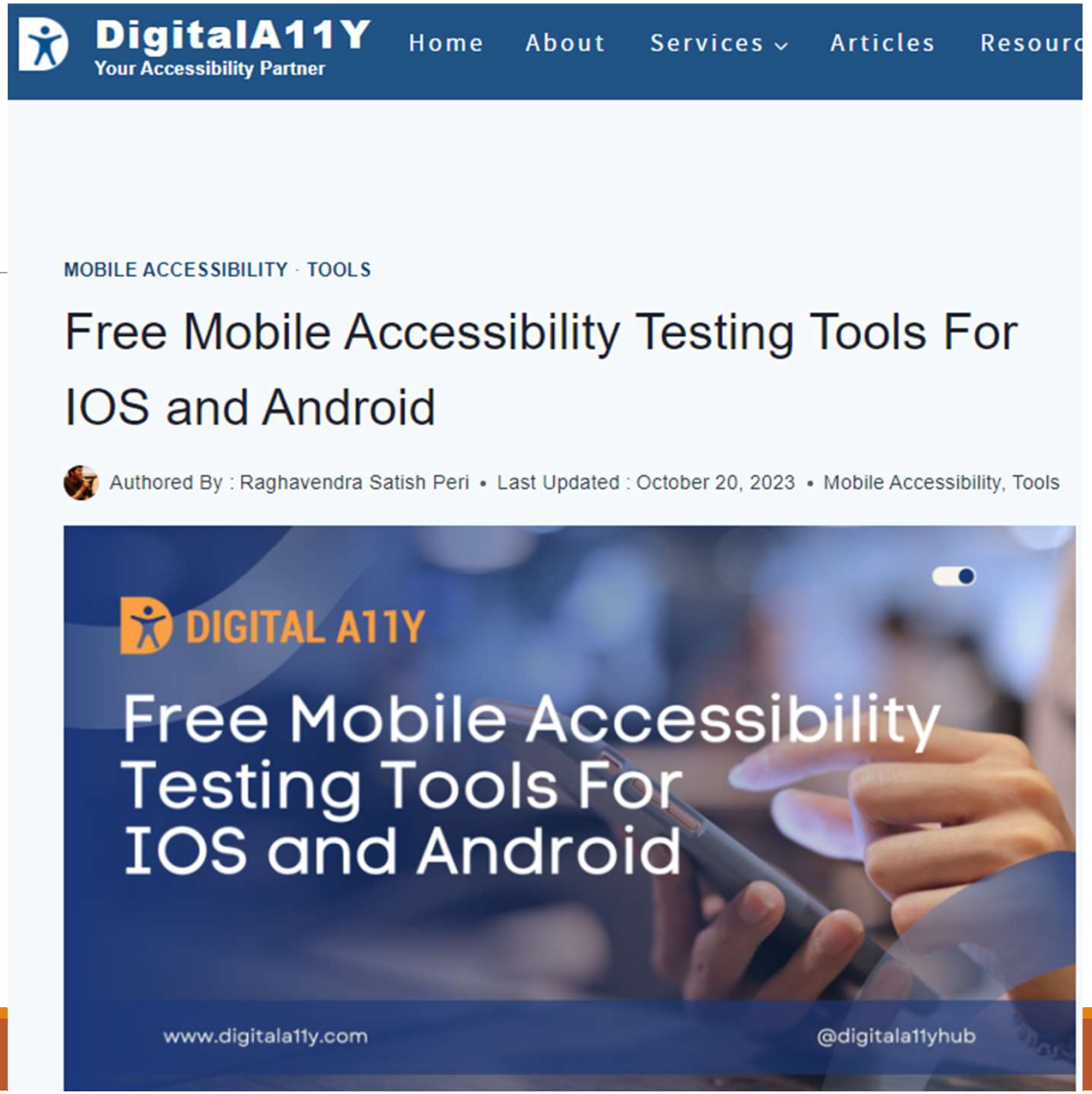


https://wave.webaim.org/



Mobile Accessibility Testing Tools

https://www.digitala11y.com/free-mobile-accessibility-testing-tools/



TÜBİTAK BİLGEM

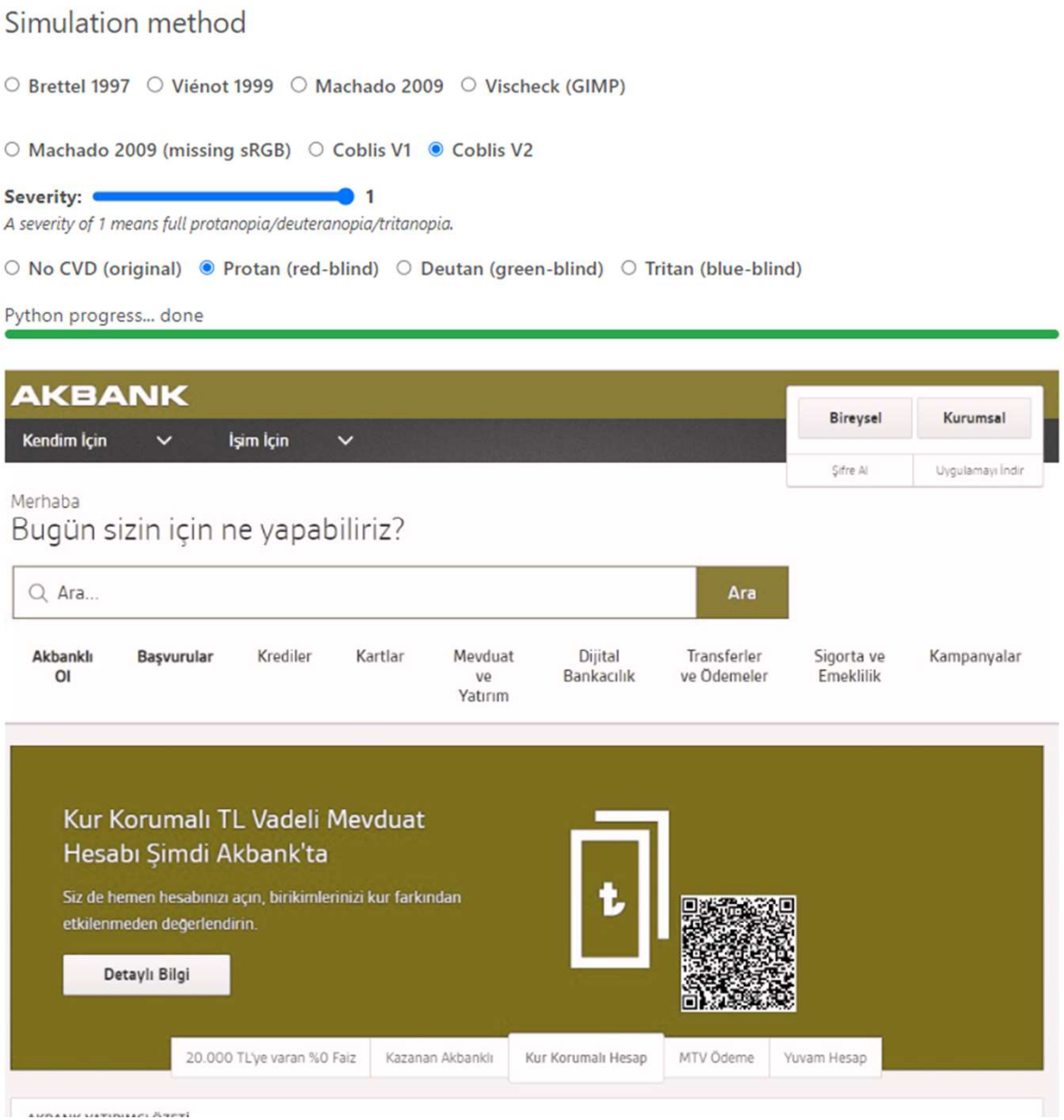
- kamis.gov.tr

Color Blindness

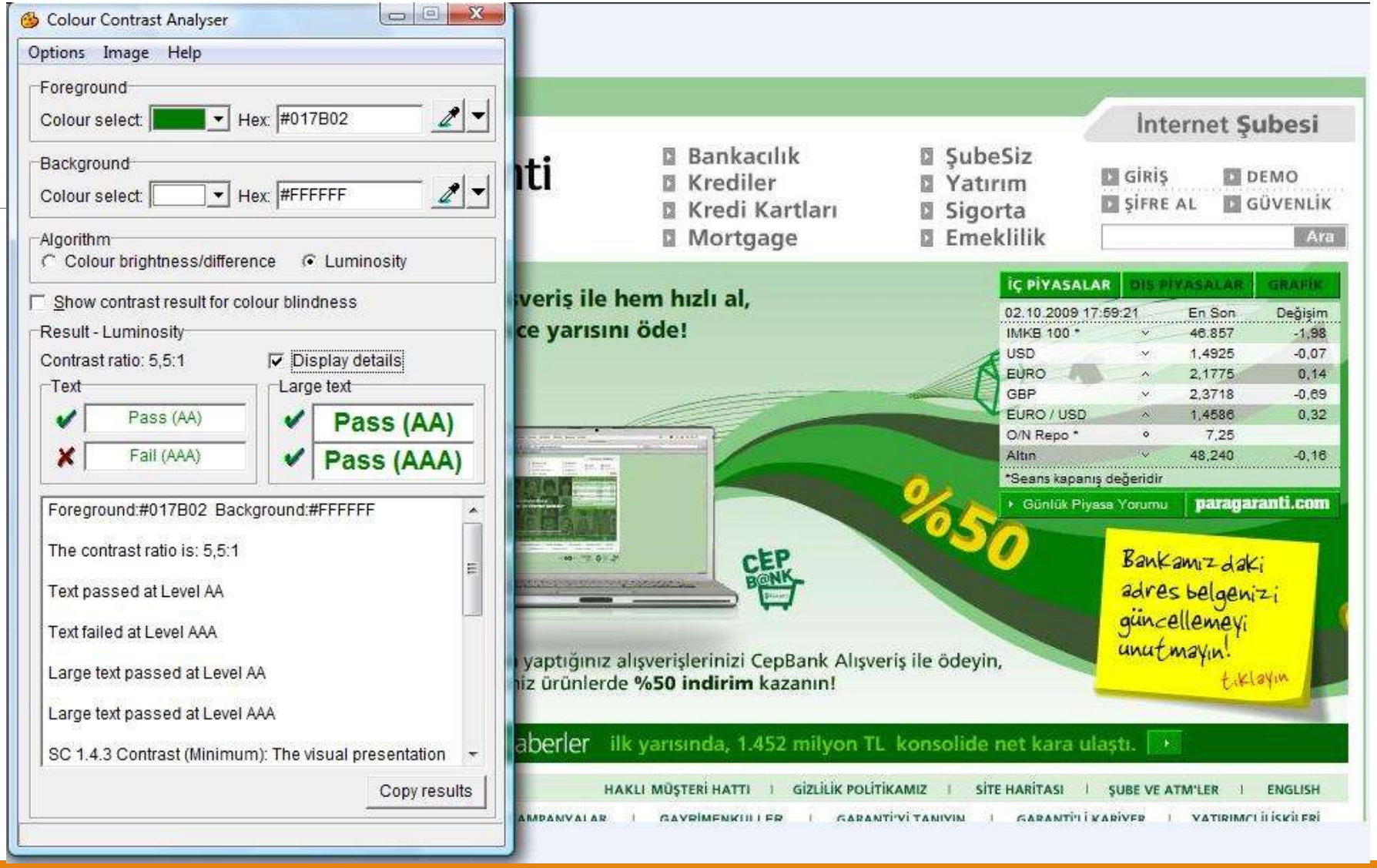
- Users who cannot distinguish colors may have problems accessing information.
- 8% of men and 1.5% of women have difficulty distinguishing colors.
- How the websites prepared for these users look should be checked using various tools/software.

Color Blindness Simulator

- https://daltonlens.org/colorblindness-simulator



Tests


Colour Contrast Analyser
Options Image Help
Foreground
Colour select:
Hex: #017B02
Background
Colour select:
Hex: #FFFFFF
Algorithm
Colour brightness/difference
Luminosity
Show contrast result for colour blindness
Result - Luminosity
Contrast ratio: 5,5:1
Display details
Text
Pass (AA)
Fail (AAA)
Large text
Pass (AA)
Pass (AAA)
Foreground:#017B02 Background:#FFFFFF
The contrast ratio is: 5,5:1
Text passed at Level AA
Text failed at Level AAA
Large text passed at Level AA
Large text passed at Level AAA
SC 1.4.3 Contrast (Minimum): The visual presentation
Copy results
İnternet Şubesi
Bankacılık
Krediler
Kredi Kartları
Mortgage
ŞubeSiz
Yatırım
Sigorta
Emeklilik
GİRİŞ
DEMO
ŞİFRE AL
GÜVENLİK
Ara
İÇ PİYASALAR
DIŞ PİYASALAR
GRAFİK
02.10.2009 17:59:21
En Son
Değişim
IMKB 100 *
46.857
-1,98
USD
1,4925
-0,07
EURO
2,1775
0,14
GBP
2,3718
-0,69
EURO / USD
1,4586
0,32
O/N Repo *
7,25
Altın
48,240
-0,16
*Seans kapanış değeridir
Günlük Piyasa Yorumu
paragaranti.com
%50
Bankamızdaki adres belgenizi güncellemeyi unutmayın!
tıklayın
CEP BANK
HAKLI MÜŞTERİ HATTI
GİZLİLİK POLİTİKAMIZ
SİTE HARİTASI
ŞUBE VE ATM'LER
ENGLISH

Colour Blindness Simulator

These are the results of your colour blindness simulation.

Original

This is the image you uploaded.

Simulation

This is how your image may appear to a person with protanopia.

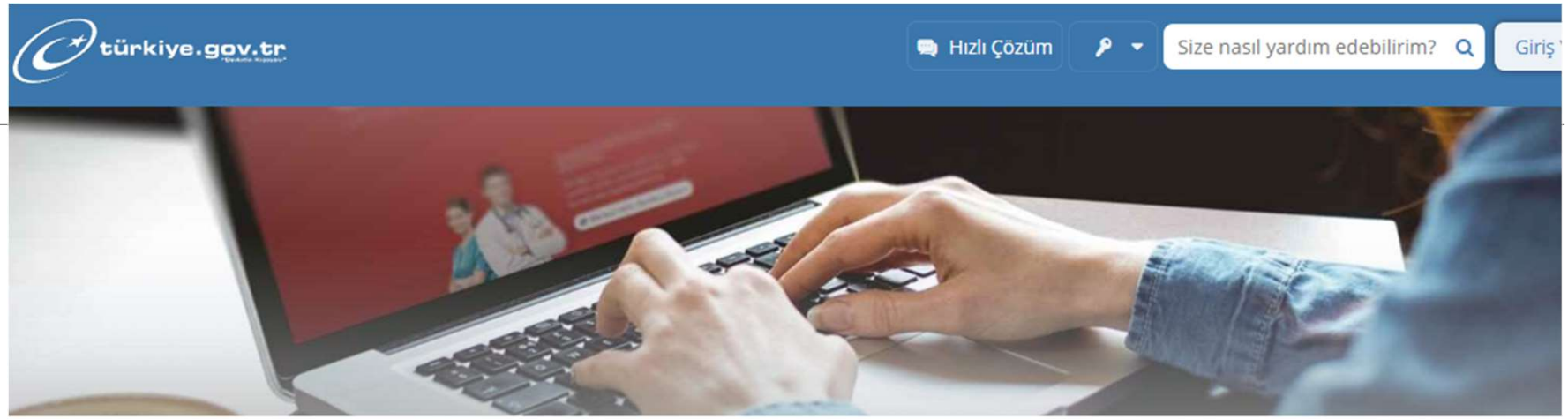
People with Special Needs

- Autism
  - Consistency, clear design, no use of metaphors, visual weight
- Verbal and Reading Difficulty
- Simple and clear writing
- Attention Deficit Hyperactivity Disorder
- Avoiding things that distract attention from the main content and color, white space and simple presentation

Elderly

- Must be adjustable according to needs
- Design for elderly needs

Most Accessible Site



TS EN ISO 9241-151 ve TSEK 194-TS ISO/IEC 40500:2012 (WCAG) Standartları

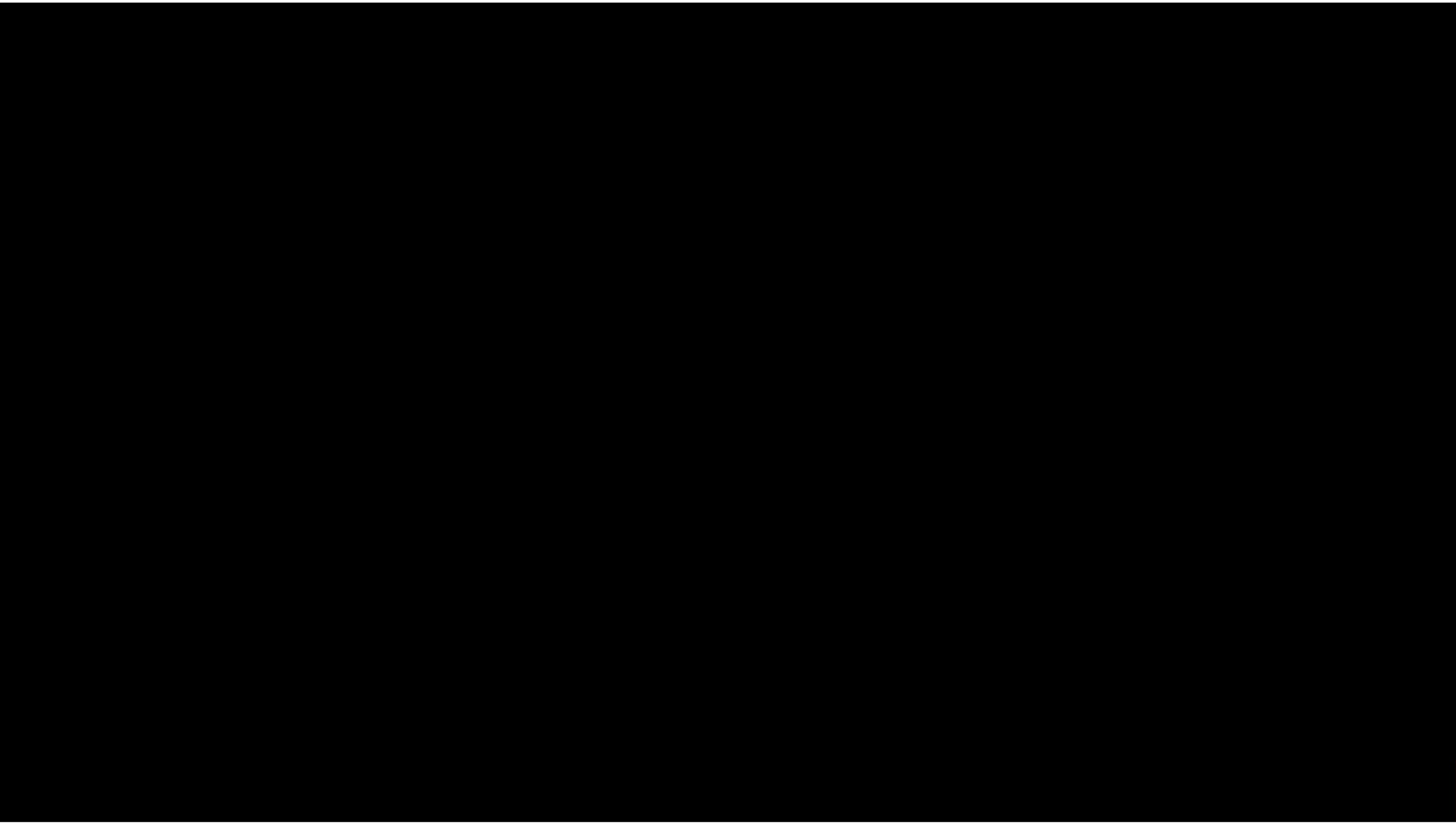
e-Devlet Kapısı aracılığıyla sunulan bilgi ve hizmetlerin mümkün olan en geniş kitleye sunulabilmesi ve erişilebilirliğinin tüm vatandaşlarımızı kapsayabilmesi en önemli hedeflerimizden biridir. Tüm vatandaşlarımızın e-Devlet Kapısı üzerinden sunulan hizmetlere daha kolay, hızlı ve kaliteli erişimlerinin sağlanmasının yanı sıra dört temel engelli grubu (görsel, işitsel, fiziksel ve zihinsel), yaşlı bireyler ve diğer sebepler ile web içeriğine erişim güçlüğü yaşayan vatandaşlarımızın da bu hizmetlere erişiminin sağlanması büyük önem arz etmektedir.

Bu amaç ile, e-Devlet Kapısı sistemi dâhilindeki tüm bileşenler ilgili uluslararası kabul görmüş teknik standartlara azami ölçüde uyum gösterecek şekilde tasarlanmaktadır. e-Devlet Kapısının kullanılabilirlik ve erişilebilirlik testleri, Orta Doğu Teknik Üniversitesi İnsan Bilgisayar Etkileşimi Araştırma Laboratuvarı tarafından gerçekleştirilmiş ve testler başarı ile sonuçlanmıştır.

e-Devlet Kapısı'nın kullanılabilirlik ve erişilebilirlik açısından yeterliliği, ilk defa 12.03.2014 tarihinde Türk Standardları Enstitüsü Bilişim Teknolojileri Komisyonu tarafından onaylanmış ve e-Devlet Kapısı ISO 9241-151 ve ISO/IEC 40500 sertifikalarını almaya hak kazanmıştır. **Bu standartlar ile ilgili Türkiye'deki ilk belgelendirme e-Devlet Kapısı için yapılmıştır.** ISO 9241-151 sertifikası, yeni yapılan tasarım ile 22.12.2017 tarihinde yenilenmiştir.

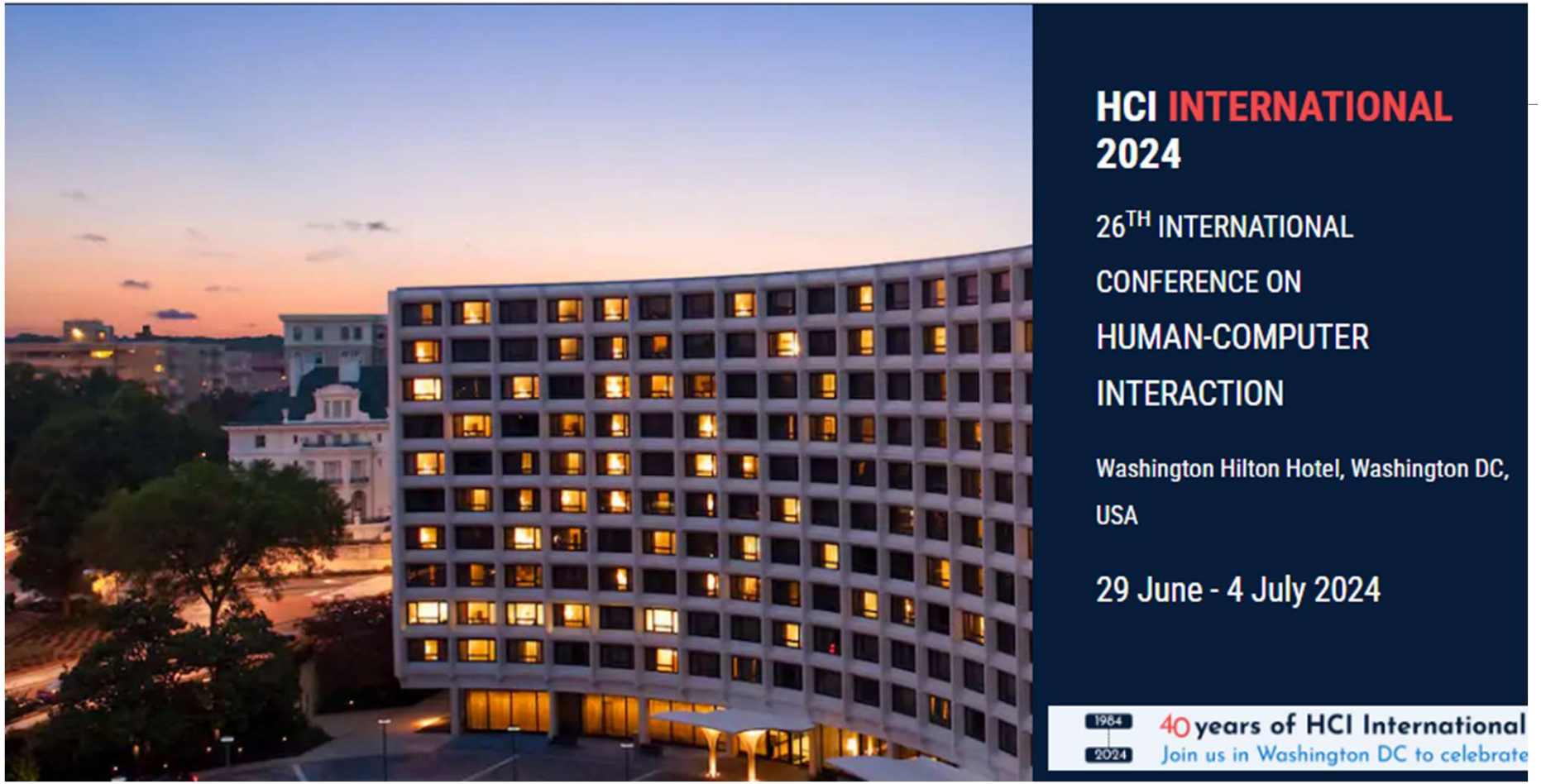
How to make Virtual Reality Technology Usable for Low Vision People

Cem Kaya – Sabancı University, CSE Graduate 2023

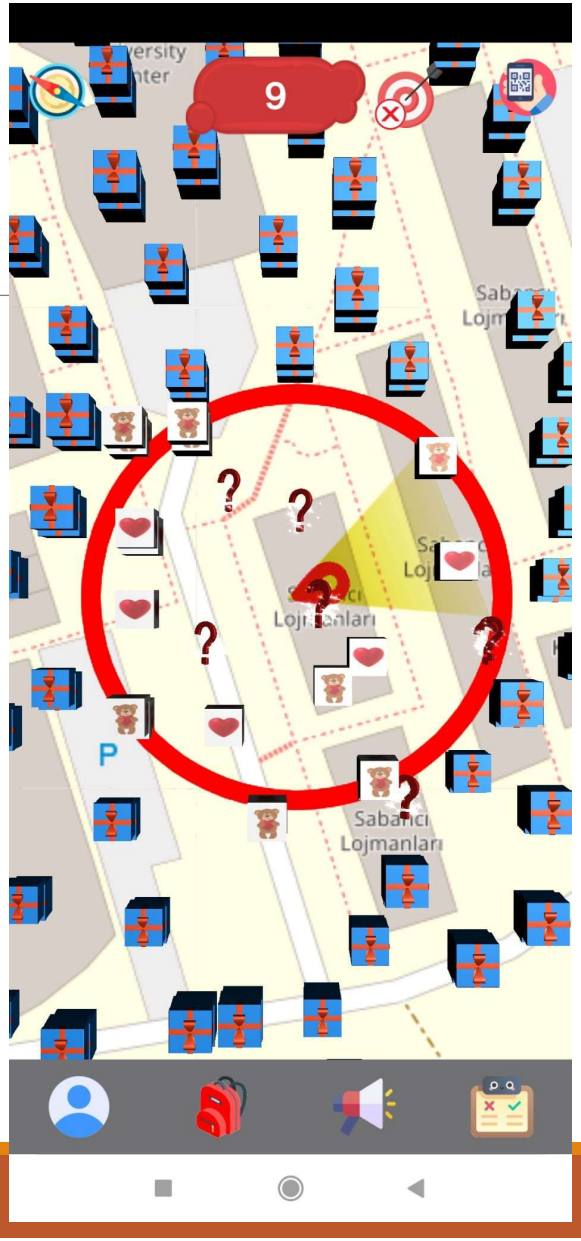


HCI International 2024

HOME ABOUT SUBMISSIONS REGISTRATION PROGRAM ACCOMMODATION EXHIBITION

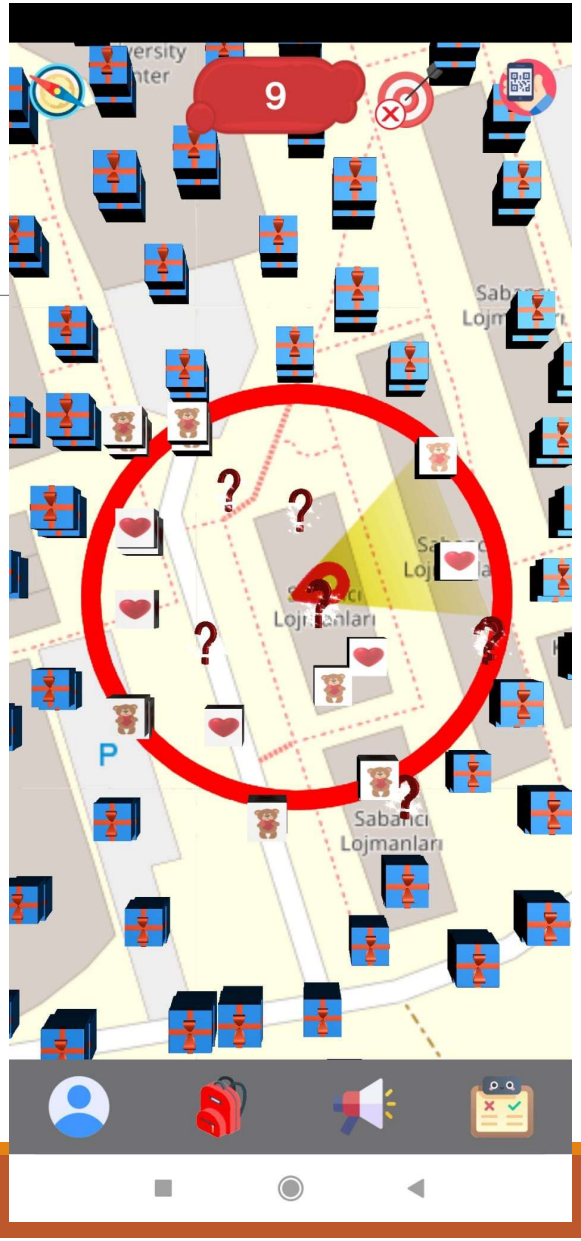


Top Scorers?



Top Scorers?

Müge Yeğin	69
Yiğit Tekelioğlu	69
Bengü Gülay	70



Term Projects - Important

Project Topic(s)?

https://docs.google.com/spreadsheets/d/1HOyEmJquaIaic0nQJTFP0I4xTKO-PQ4_TPWt9Z5QdEU/edit#gid=0

Friday, one-to-one meetings with groups.

Add your candidate topic(s) to the form and e-mail me.

Course Evaluations

Final Report - structure

Empirical

- Gather user data on an HCI topic

Title

Abstract
Introduction
Method
Results / Analysis
Discussion/Conclusion
References

Warnings

- Make a pilot test
- Keep the variables under control (internal validity)
  - E.g conduct tests in the same environment, use standard hardware, use standard instructions
- Participant characteristics / Persona
- Gender / Education / Background balance
- Task shuffling

Title

descriptive,

direct,

accurate,

appropriate,

interesting!,

concise,

precise,

unique

Abstract

A one paragraph summary

- A statement on objective/purpose of the investigation (interesting!)
- Description of participants
- Brief description of what participants did
- Summary of findings

Introduction

Lit review

- Background & rationale (previous research, what they found, what they identify as possible issues/questions)
- Relation/Contribution to your study
- Use: EBSCO, ScienceDirect, SCI, SSCI, etc.

Statement of purpose

- “The current study was conducted to evaluate the effect of X on Y” .... or ..... “to find out what are the factors that lead to Z” or “to determine the relationship between A and B..”

Method

Can I replicate your study - Enough details

Who participated (number, characteristics, volunteer or random)

What materials were employed (systems, questionnaires - design, validity and reliability)

What data was collected (dependent variables i.e. scores, ratings, responses)

What were participants required to do (where, who, sequence of events - include instructions & tasks)

Results / Analysis

How have the data been treated?

Text and graphs

Statistics - descriptive/inferential

Summarize the results

Discussion/Conclusion – So What?

Interpretation-

- what do the results mean in terms of your original questions
- why do you think they turned out like this
- Compare/Contrast with the literature

Critique your study (limitations) and recommend improvements

Suggestions for further research

Credibility of the study

Definition of the construct being measured

Congruence between method & question

Measurement

- Bias: instruction & instrument (wording), administering
- Reliability (stable/decision consistency)
  - consistency: e.g. adequate sample size to determine consensus
- Validity

PILOT your method….

Try your method before capturing data for real…..

- Ask friends to answer your survey, take your test, perform your experiment etc.
- look for issues that confuse them (or you!) - modify accordingly

Statistics

Descriptive/Inferential

- Mean (median, mode)
- Range
- Standard deviation
- Run tests if you are comfortable (t-test, Anova, etc.)

Provide tabulated raw data if possible, (put in appendices if large)

Common pitfalls

Rambling, unfocused style

- Keep the research question in mind as you write

All claims and opinions, no evidence

- Cite literature that supports your argument

Misses relevant topics from class

- Try to see how the readings and lectures fit

NO PLAGIARISM !!