

Data Science

Lecture 1-1: Course Introduction and Organization



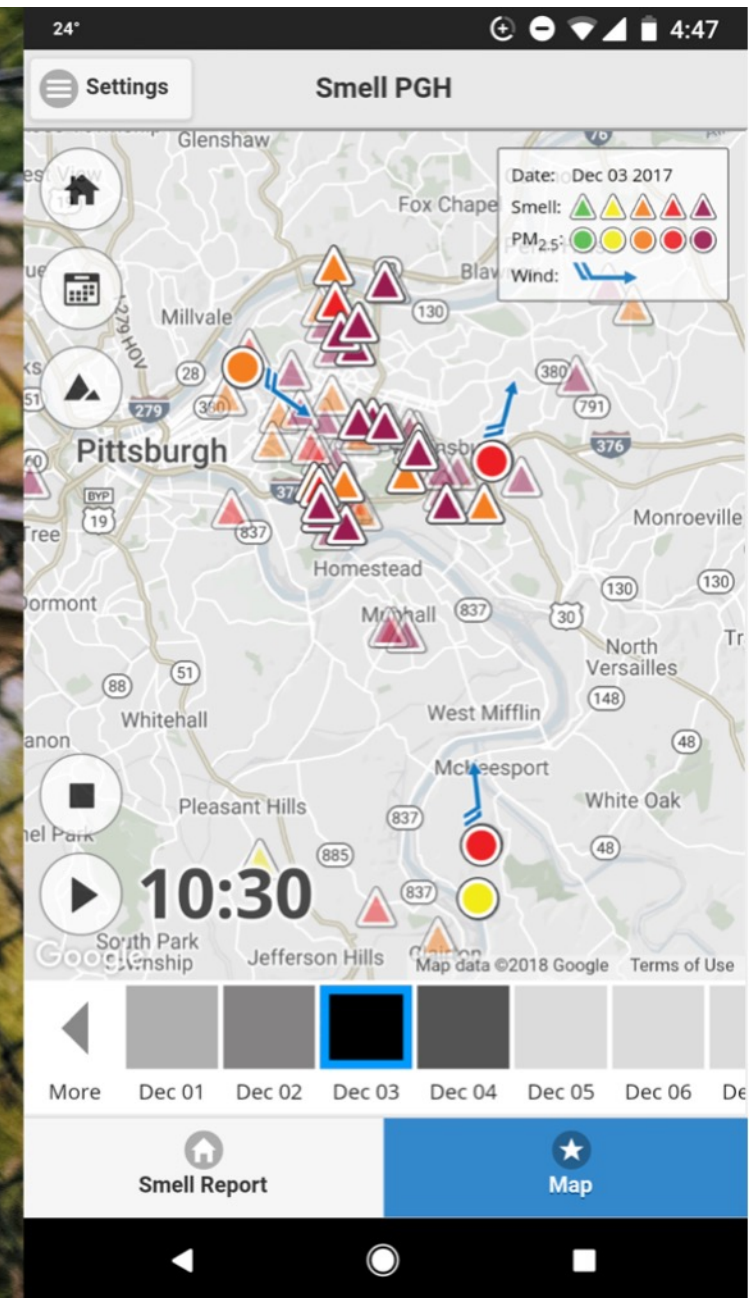
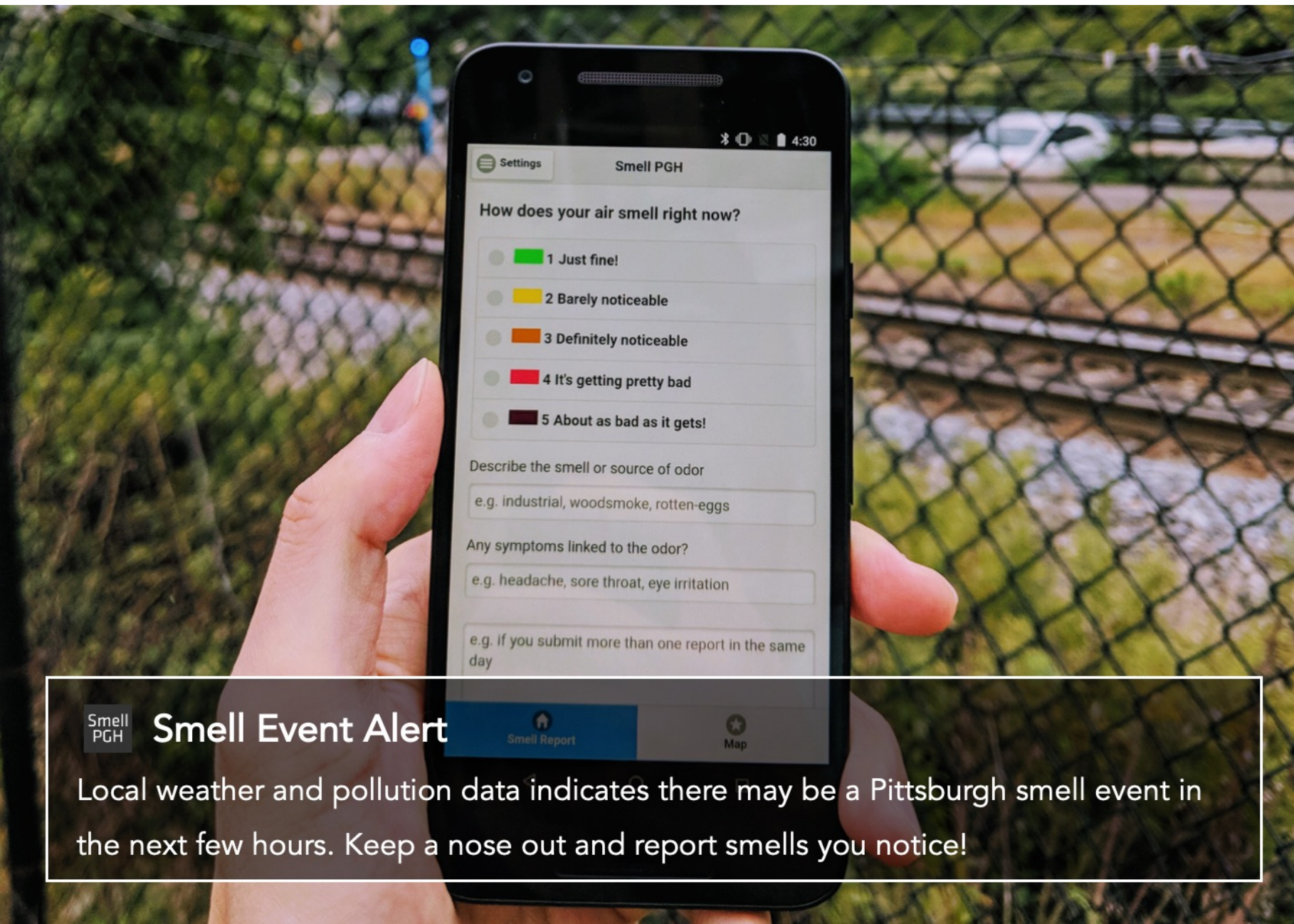
UNIVERSITY
OF AMSTERDAM

Lecturer: Yen-Chia Hsu

Date: Sep 2025

Data science is about turning rich data into actionable insight and making data impactful!

This course aims to familiarize you with various data science pipelines (processing structured data, text data, and image data) by alternating between theories and practices.



Smell
PGH

Smell Event Alert

Local weather and pollution data indicates there may be a Pittsburgh smell event in the next few hours. Keep a nose out and report smells you notice!



Example: understanding parking patterns and law enforcement -- <https://responsiblesensinglab.org/projects/scan-cars>

LEGEND

ANALYSIS

Tree cover gain - 2000-2020

Tree cover gain

Tree cover loss - 2001-2021

Tree cover loss

Displaying Tree cover loss with canopy density > 30% ▾

2001 2004 2008 2011 2015 2018 2021

Tree cover loss is not always deforestation.

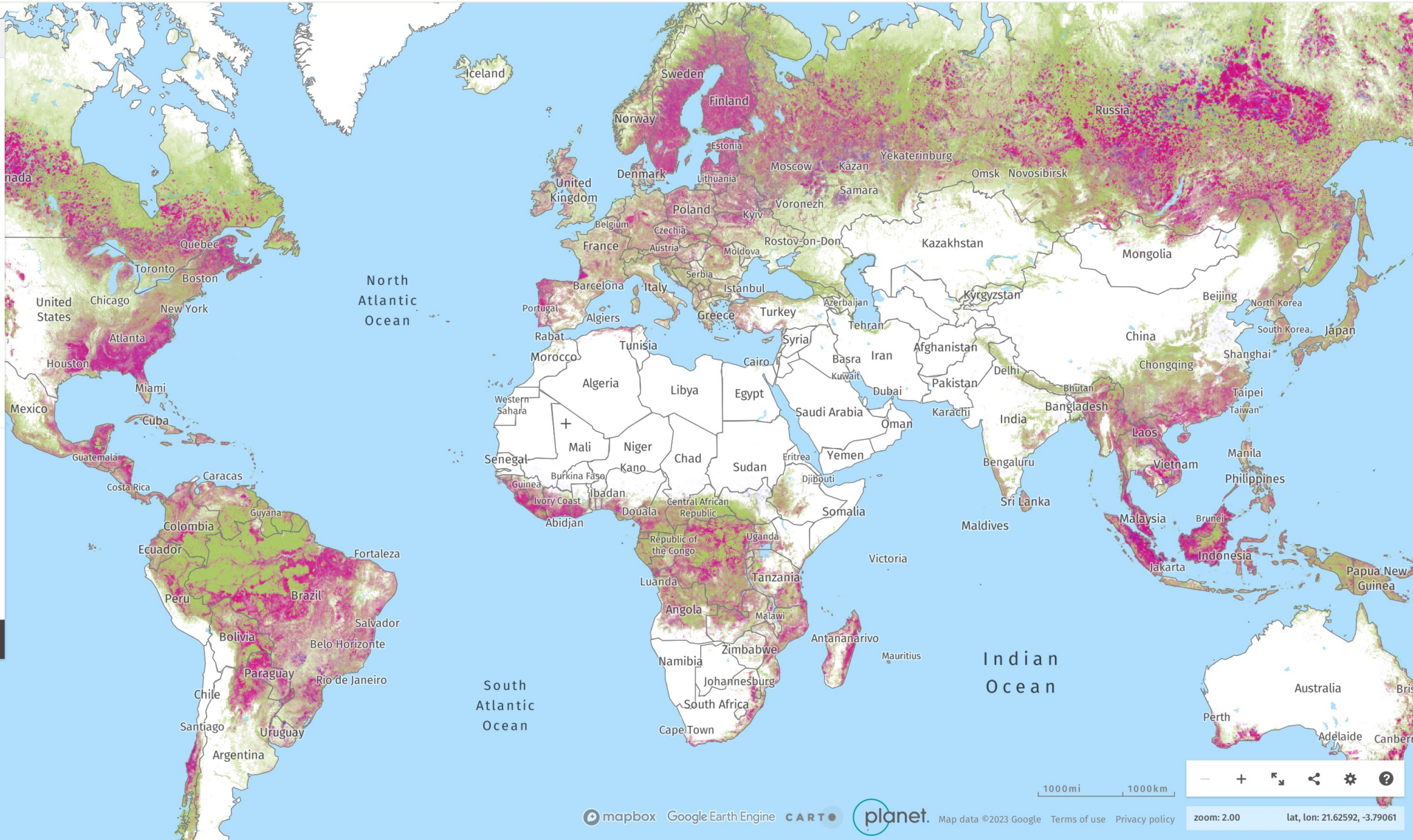
Tree cover - 2010

Tree cover

Displaying Tree cover with canopy density > 30% ▾

Displaying Tree cover for 2010 ▾

PLANET SATELLITE IMAGERY (TROPICS) ▾



amazon.nl

Hello

Select your address

All

nintendo switch

EN

Hello, sign in

Account & Lists

Returns

& Orders

Shopping

Basket

All

Best Sellers

Customer Service

Today's Deals

Gift Ideas

Prime

Your Amazon.nl

Gift Cards

Kindle Books

Sell on Amazon

Prime Video

Movies & TV

Watch now

Video Games

Best Sellers

New Releases

Trending

Gaming Store

Nintendo Switch

PlayStation 5

PlayStation 4

Xbox Series X & S

Xbox One

PC

Electronics Deals Week

Last day

Back to results

VIDEO

Nintendo Switch Console, Grijs (Nintendo Switch)

Visit the Nintendo Store

Platform : Nintendo Switch

★★★★★

15,331 ratings

€329⁹⁹

All prices include VAT.

Platform For Display: Nintendo Switch

Edition: Grijs

Grijs

Rood/Blauw

About this item

- Slimme keuze voor dagelijkse behoeften
- Gemakkelijk mee te nemen, compact ontwerp
- Gemaakt met de nieuwste technologie
- De tool voor een reeks creatieve activiteiten voor iedereen
- Je favoriete content staat altijd op de voorgrond
- Een visuele ervaring van hoge kwaliteit

€329⁹⁹

€9.11 delivery February 6 - 9.

Details

Select delivery location

In stock.

Quantity: 1

Add to Basket

Buy now

Secure transaction

Dispatches from

TechLead NL

Sold by

TechLead NL

Add to List

Add other items:

What other items do customers buy after viewing this item?

Page 1 of 6

Nintendo Switch console (OLED model) with white Joy-Con docking station

Nintendo

★★★★★ 8,078

Nintendo Switch

€324.95

Get it as soon as Wednesday, Feb 1

FREE Delivery on orders dispatched by Amazon over €20

Nintendo Switch Mario Kart 8 Deluxe

Nintendo

★★★★★ 79

Nintendo Switch

€49.90

Get it as soon as Wednesday, Feb 1

FREE Delivery on orders dispatched by Amazon over €20

SanDisk MicroSDXC UHS-I Card for Nintendo Switch, true red

SanDisk

★★★★★ 255,010

Nintendo Switch

€19.29

Orzly Carrying Case Compatible with Nintendo Switch and New Switch OLED...

Orzly

★★★★★ 56,320

Nintendo Switch Cases

#1 Best Seller in Nintendo Switch Cases

41% off Deal

€13.53

Was: €23.99

Get it as soon as Thursday, Feb 2

New Super Mario Bros. U Deluxe (Nintendo Switch)

Nintendo

★★★★★ 12,488

Nintendo Switch

€48.95

Get it as soon as Monday, Feb 6

FREE Delivery on orders dispatched by Amazon over €20

Nintendo Switch console (OLED-model): nieuwe versie, intense kleuren, 7 inch scherm - met een...

Nintendo

★★★★★ 2,099

Nintendo Switch

€338.00

Mario Kart 8 : Deluxe (Nintendo Switch)

Nintendo

★★★★★ 39,054

Nintendo Switch

€49.95

Example: recommending products to customers -- <https://www.amazon.nl/>

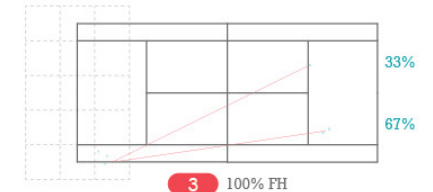
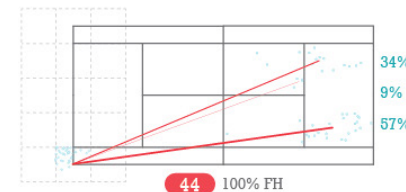
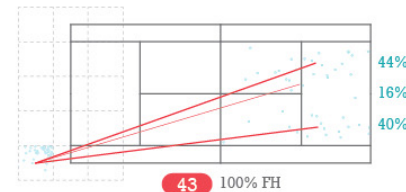
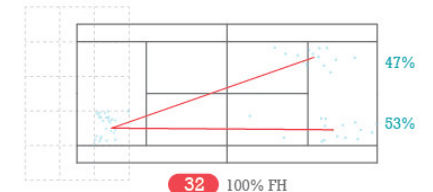
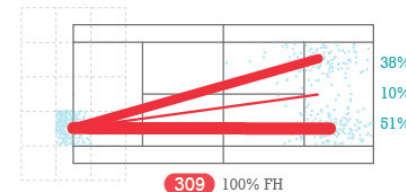
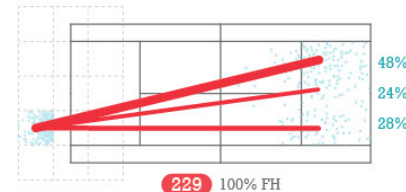
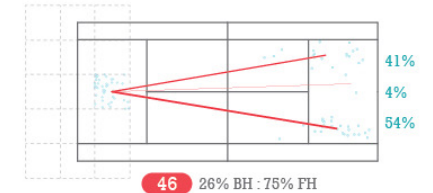
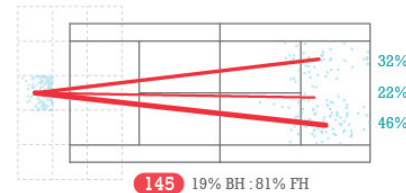
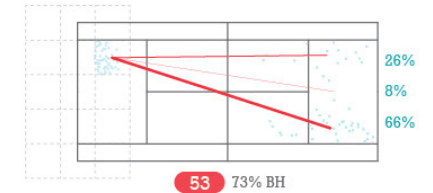
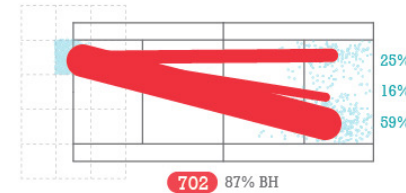
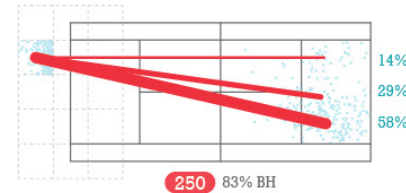
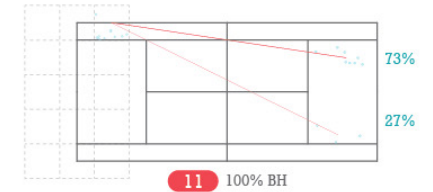
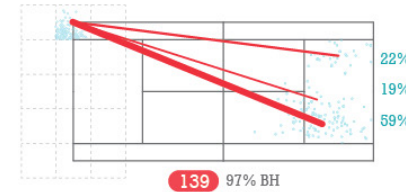
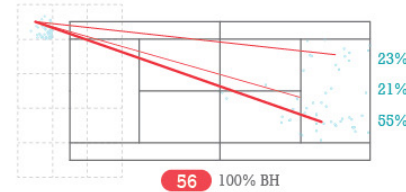
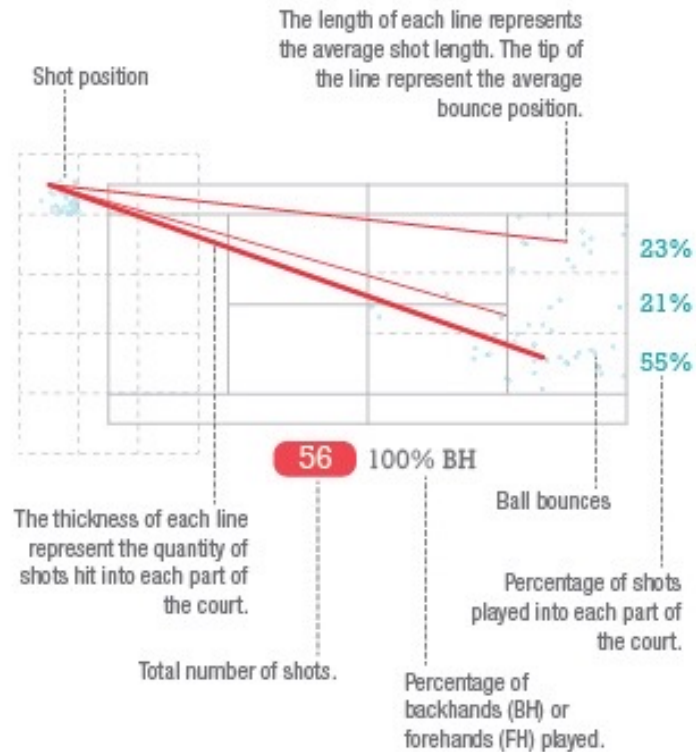
7



Kei Nishikori Shot Charts

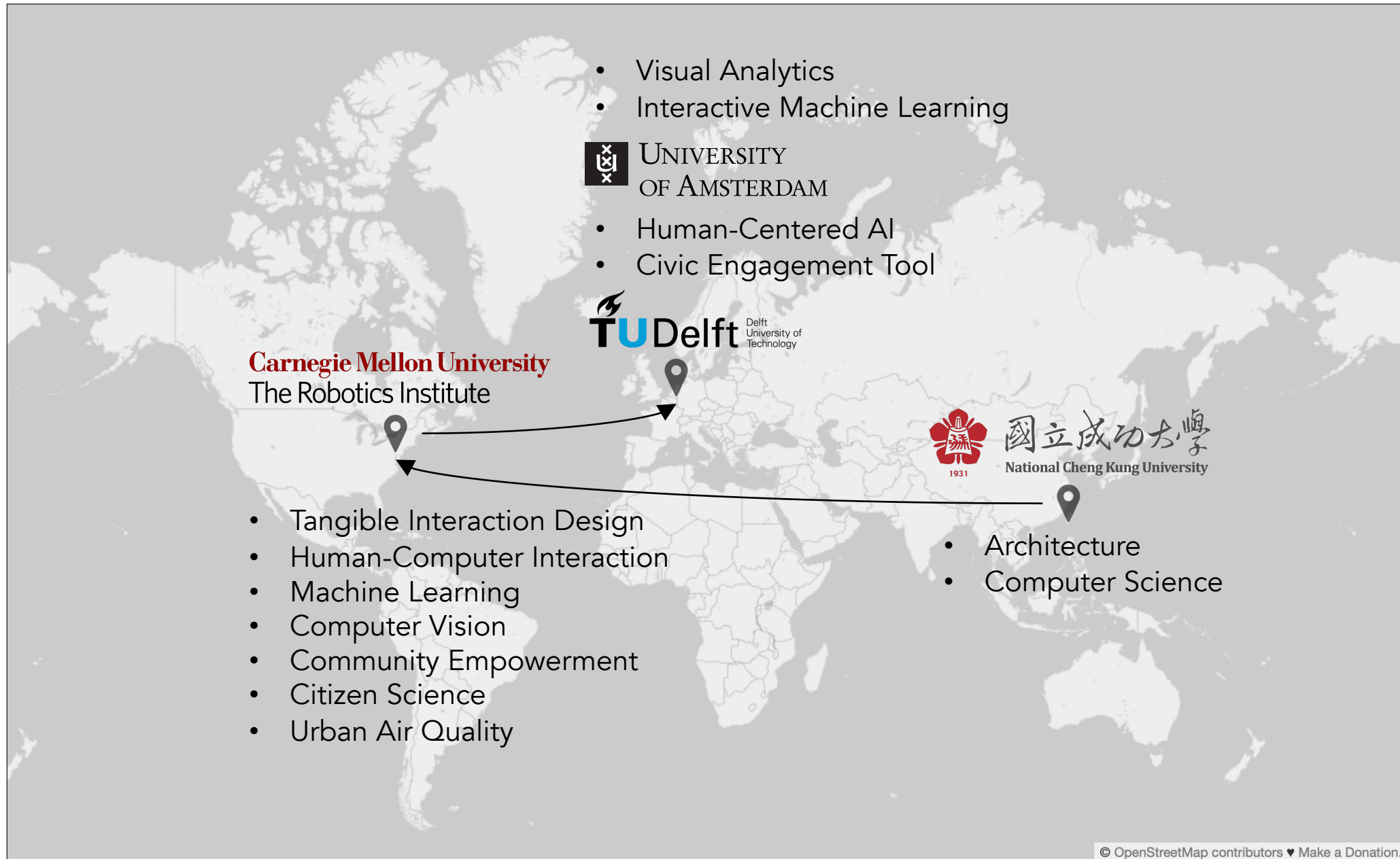
錦織圭のショットチャート

Shot charts are critical in understanding a player's on court behaviour. They are frequently used to map shot patterns from particular areas of the court. These patterns are of particular interest to coaches and players for pre and post match tactical analysis. Here we present 2,443* shots from Kei Nishikori that were played over a period of 6 months in 2014-15 against opponents like Federer, Djokovic, Murray and Wawrinka.



This course has four teaching team members.
Check Canvas for their contact information.

- Yen-Chia Hsu, course coordinator
- Yahia Dalbah, head of teaching assistants
- Kato Schmidt, teaching assistant
- Basten Leeftink, teaching assistant



Schedule Outline

Week	Content	Deadline
1	Introduction + Data Science Fundamentals	
2	Structured Data Processing	
3	Deep Learning Overview + PyTorch	Reflective writing due, Tuesday 23:59
4	Mid-term Exam (no seminars, only one lecture)	
5	Text Data Processing	
6	Image Data Processing	Reflective writing due, Tuesday 23:59
7	Multimodal Data Processing + Guest Lecture	Reflective writing due, Tuesday 23:59
8	Final Exam (no seminars and no lecture)	

Administration

- Announcements will be made on Canvas.
- Lectures will be streamed and recorded with links on the Canvas home page (quality not guaranteed).
- Lectures may be given virtually if unexpected situations happen, same as seminars.
- Use TicketVise (preferred) or email to ask questions.
- There is no attendance requirement.
- You are expected to treat others with mutual respect and appreciation regardless of any differences.
- It is strongly recommended to stay home if you have symptoms associated with respiratory infections.

Assessment includes **two exams** (midterm 40%, final 50%) and **three reflective writing submissions** of assignments (10% total).

Exams

- Check <https://multix.io/data-science-book-uva/#schedule-outline> about the coverage of exams.
- Exams are based on multiple choice questions. We provide mock exams for you to practice.
- You may bring an A4-size cheat sheet with two sides of content (written or printed) to the exams.
- No other materials are allowed during the exams (except the cheat sheet).
- Check the date and time of the exams carefully on UvA DataNose.
- No minimum grade requirement for each exam to pass the course. But you still need to get at least 5.5 in the final score. There is a resit, which is 90% weight (will override your original weighted sum of exam scores).

Reflective Writing Submissions for Assignments

- We only grade your reflective writing submissions but not the assignments.
- Use the reflective writing template that we provide for submissions.
- We grade the reflective writing with pass/fail.
- You need to show that you have done the assignment by explaining what you have learned.
- We only accept submissions on Canvas (no email submissions).
- Check the syllabus for the late submission policy (automatic deduction of 10% max points per day).
- Assignment materials can appear in the mid-term exam, final exam, and resit.

Important Notes on Expectations

- We do not teach programming. Instead, we teach how to do data science using programming and machine learning techniques. Basic concepts of machine learning will be covered.
- We do not aim to cover everything in data science. Instead, we introduce ways of doing data science that enable students to study further in relevant topics.
- We do not teach you data collection. Instead, we assume that someone has collected the datasets.
- We do not teach data science in production. Most of the techniques that are covered in this course are for the development environment.
- We expect students to have good Python programming skills already. The Python Coding Warm-Up practice reflects our expectations.

Feedback Needed!

- We had this course since 2023 for the third-year bachelor students in the information science program (not for your cohort).
- This is the first time that we give this course for the second-year bachelor students.
- We need your feedback to understand more about whether the materials suit your level well (and how to improve the course materials for future students).
- We would greatly appreciate it if you could give us feedback in the reflective writing assignments!

For more details, check the course website and the syllabus page below:

- <https://multix.io/data-science-book-uva/>
- <https://multix.io/data-science-book-uva/syllabus.html>



Questions?