



Opleiding HBO-ICT

Thema AI / Machine Learning

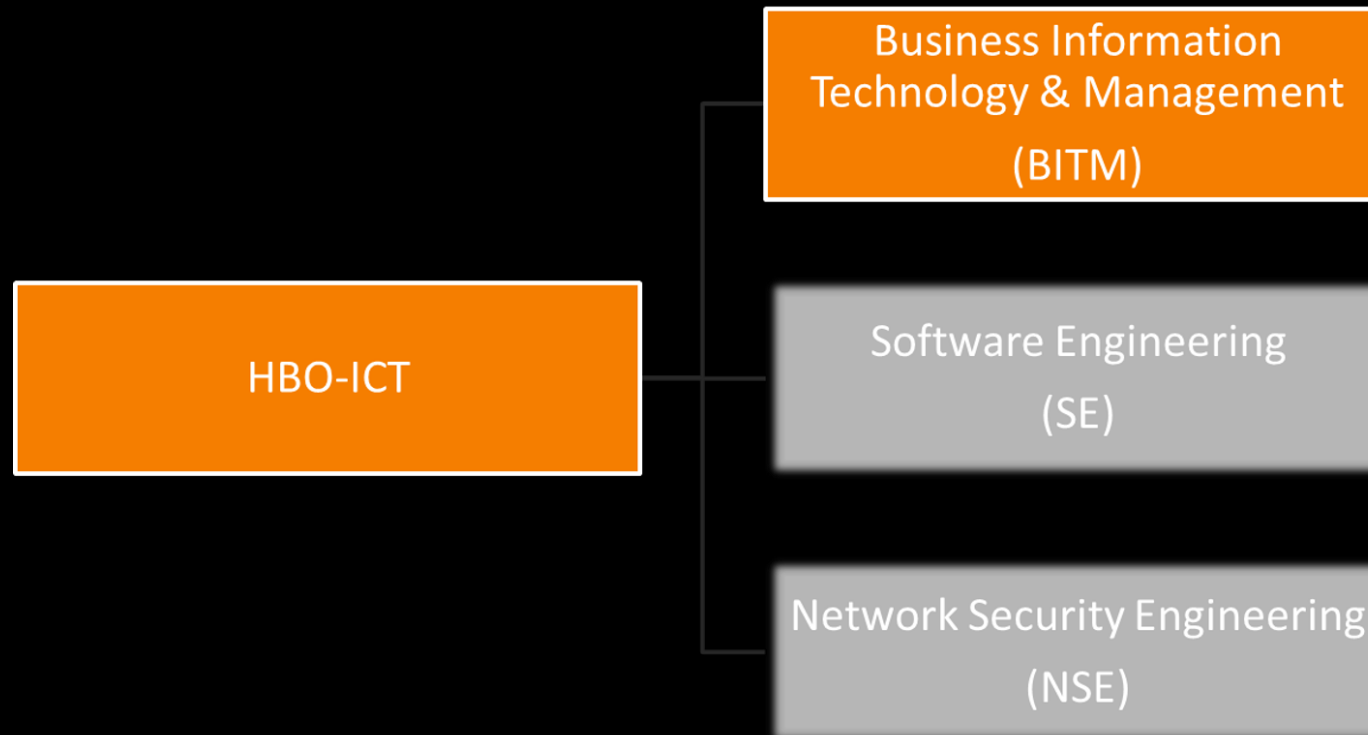


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Inschrijven via studielink.nl (voor 1 mei)



4 jarige bachelor opleiding met 10 profielen

4 jarige bachelor opleiding met 10 ICT profielen

Adaptief en veerkrachtig, innovatief,
verantwoordelijk

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Laatste technieken, echte projecten,
verbonden (werken in kleine teams)

4 jarige bachelor opleiding met 10 ICT profielen

Adaptief en veerkrachtig, innovatief, verantwoordelijk

Laatste technieken, echte projecten, verbonden (werken in kleine teams)

Business-, informatie analist, procesmanager,
datascientist



Hanzehogeschool
Groningen



digital
society
hub

10













Voorbeeld project

Is het mogelijk om, met behulp van machine learning, in een vroeg stadium te bepalen of een voetballer fysiek onderpresteren zal zijn in vergelijking met zijn normale prestaties tijdens de wedstrijd?

Doel

-Help de coach om een beter geïnformeerde beslissing te nemen over invallers of het veranderen van tactiek.

Wedstrijden in de Eredivisie

302 wedstrijden

Positiegegevens van spelers en de bal

Gedetecteerd door SportsVU optical tracking system (SportsVU, STATS LLC, Chicago, IL, USA)

10Hz data

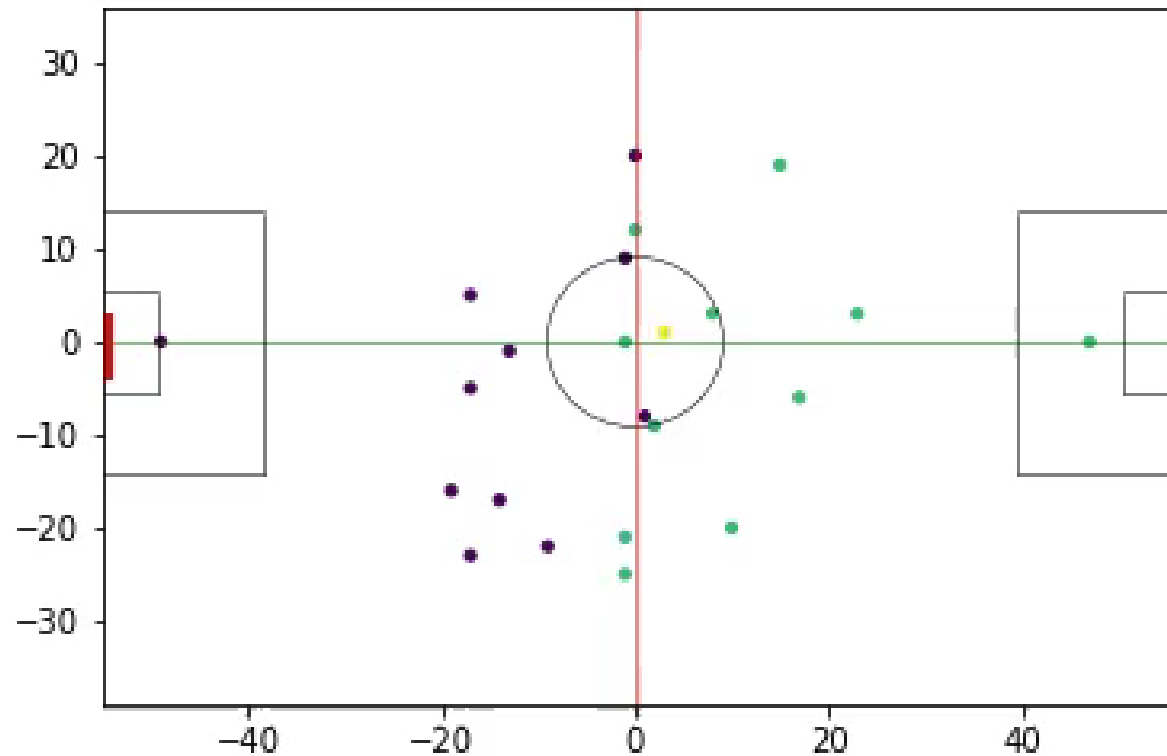
Anonymized, 633.000.000 records

TIMESTAMP	X	Y	SPEED	ACCELERATION	PLAYER_NAME	SHIRT	TEAM	GAME_NAME
1300	-2.432	-7.062	2.46	0.83	16380056427367412720	14	2159381701739496294	918255
1400	-2.1790...	-7.0420...	2.54	0.79	16380056427367412720	14	2159381701739496294	918255
1500	-1.921	-7.015	2.62	0.78	16380056427367412720	14	2159381701739496294	918255
1600	-1.6580...	-6.978	2.7	0.77	16380056427367412720	14	2159381701739496294	918255
1700	-1.39	-6.928	2.77	0.76	16380056427367412720	14	2159381701739496294	918255
1800	-1.119	-6.862	2.85	0.75	16380056427367412720	14	2159381701739496294	918255
1900	-0.845	-6.779	2.92	0.72	16380056427367412720	14	2159381701739496294	918255
2000	-0.568	-6.676	3.0	0.68	16380056427367412720	14	2159381701739496294	918255
2100	-0.289	-6.5539...	3.06	0.63	16380056427367412720	14	2159381701739496294	918255
2200	-0.008	-6.416	3.12	0.56	16380056427367412720	14	2159381701739496294	918255
2300	0.275	-6.2639...	3.17	0.5	16380056427367412720	14	2159381701739496294	918255
2400	0.55899...	-6.103	3.22	0.42	16380056427367412720	14	2159381701739496294	918255
2500	0.84400...	-5.936	3.26	0.33	16380056427367412720	14	2159381701739496294	918255
2600	1.129	-5.767	3.28	0.23	16380056427367412720	14	2159381701739496294	918255
2700	1.41400...	-5.598	3.3	0.13	16380056427367412720	14	2159381701739496294	918255
2800	1.7	-5.428	3.31	0.05	16380056427367412720	14	2159381701739496294	918255
2900	1.986	-5.2589...	3.31	-0.02	16380056427367412720	14	2159381701739496294	918255



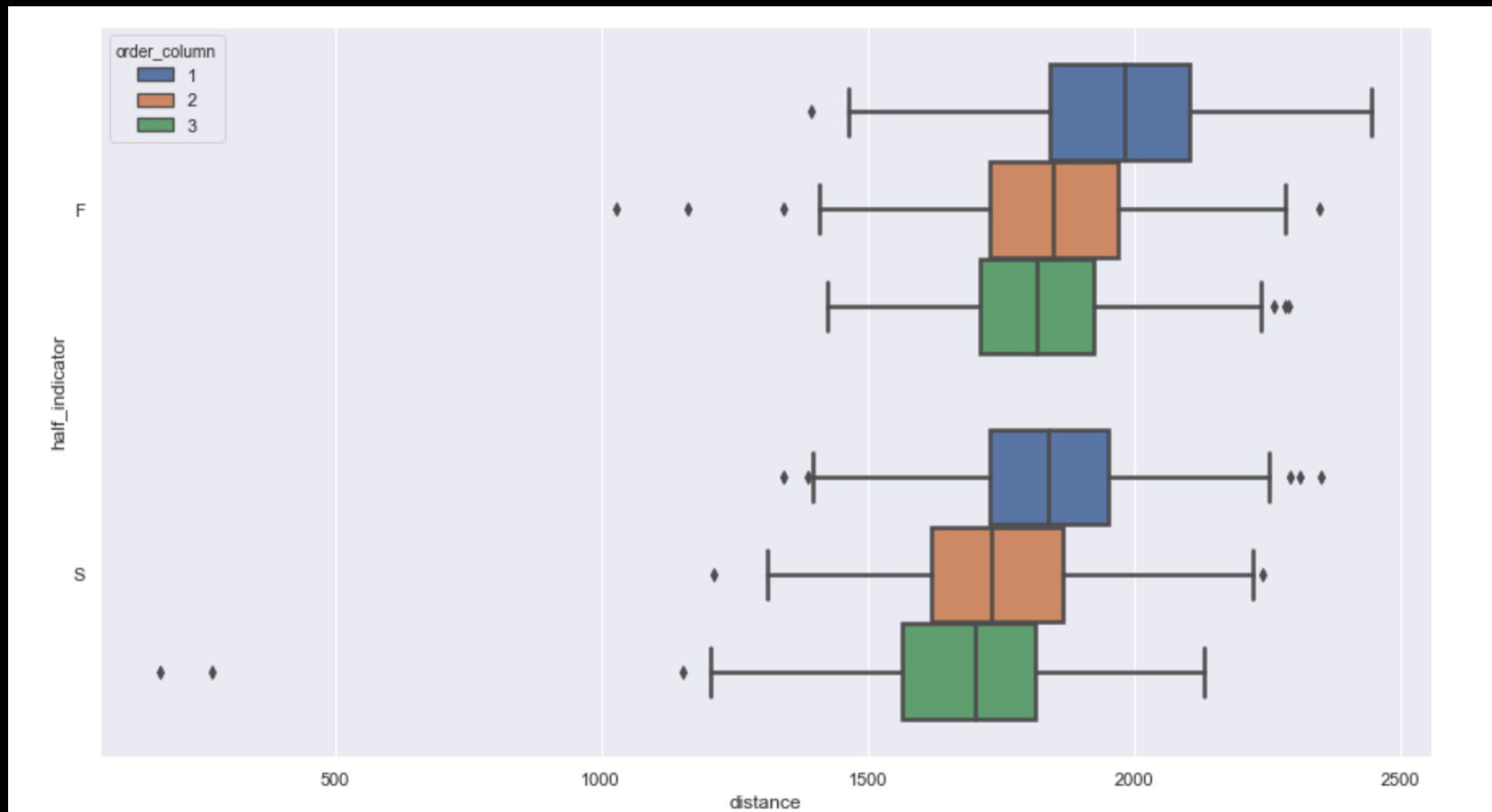
Animatie van een wedstrijd

```
In [21]: def update(frame, data, scat):  
         group = data.get_group(frame)  
         scat.set_offsets(group[['x', 'y']].values)  
         scat.set_array(group['club_id'])
```



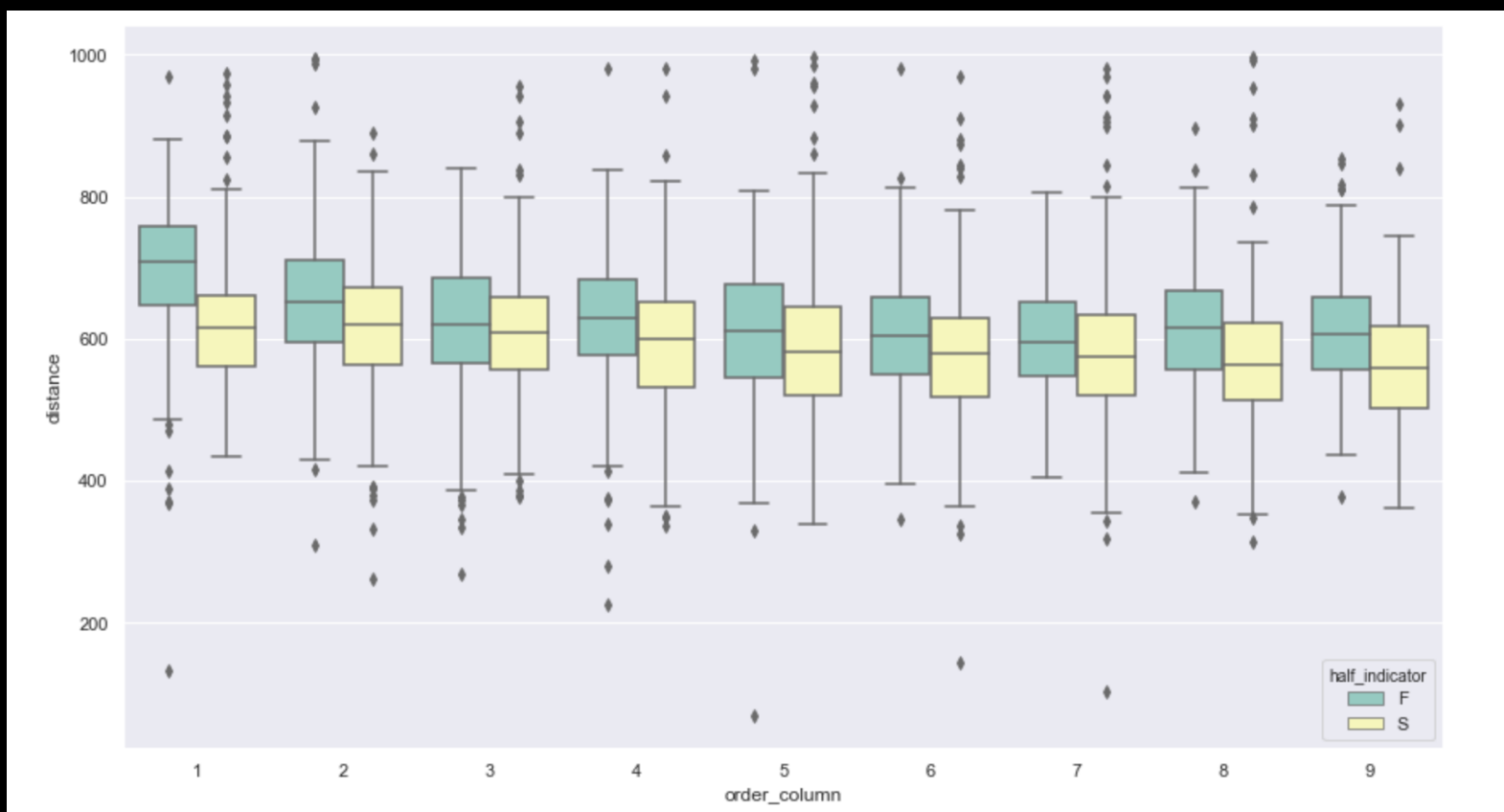
Afstand per 15 minuten

Gemiddelde afstand per 15 minuten per helft

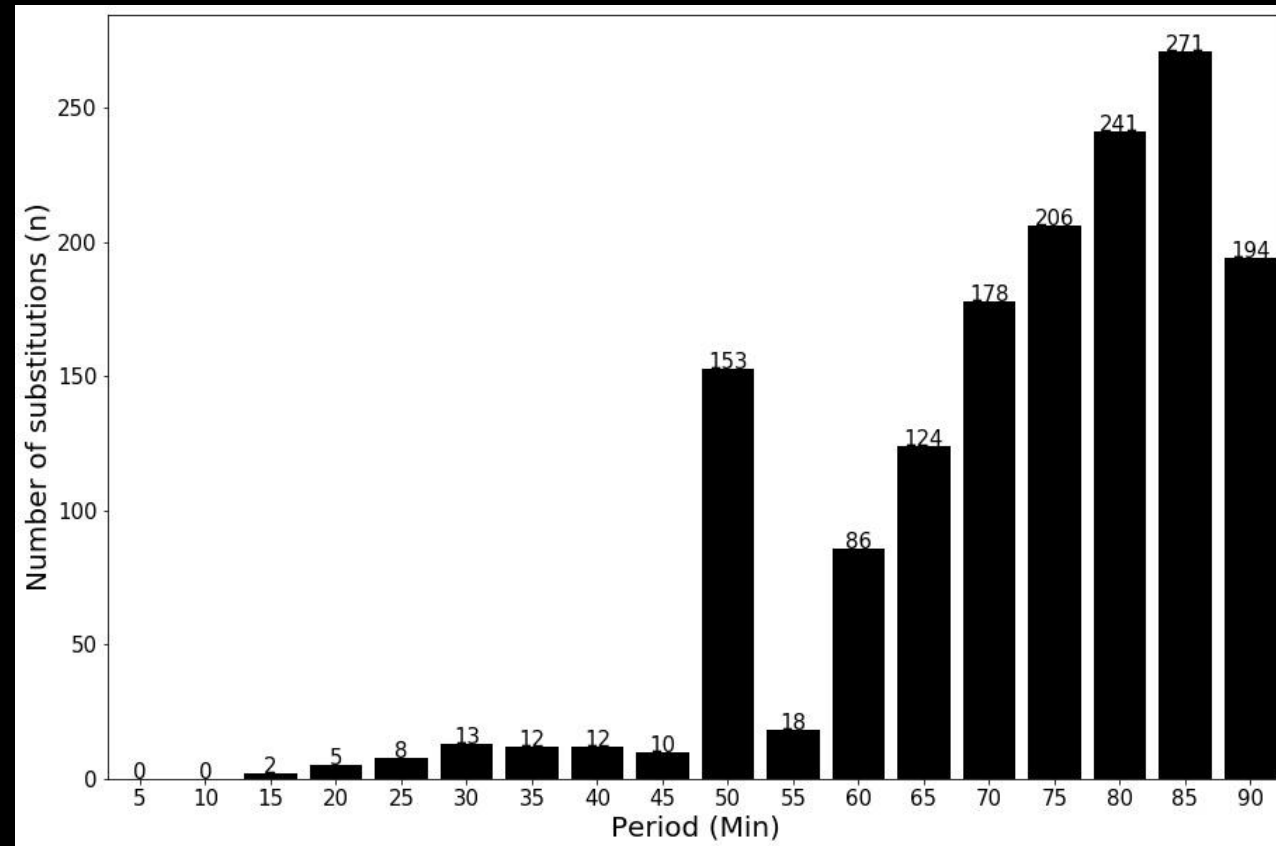


Afstand per vijf minuten

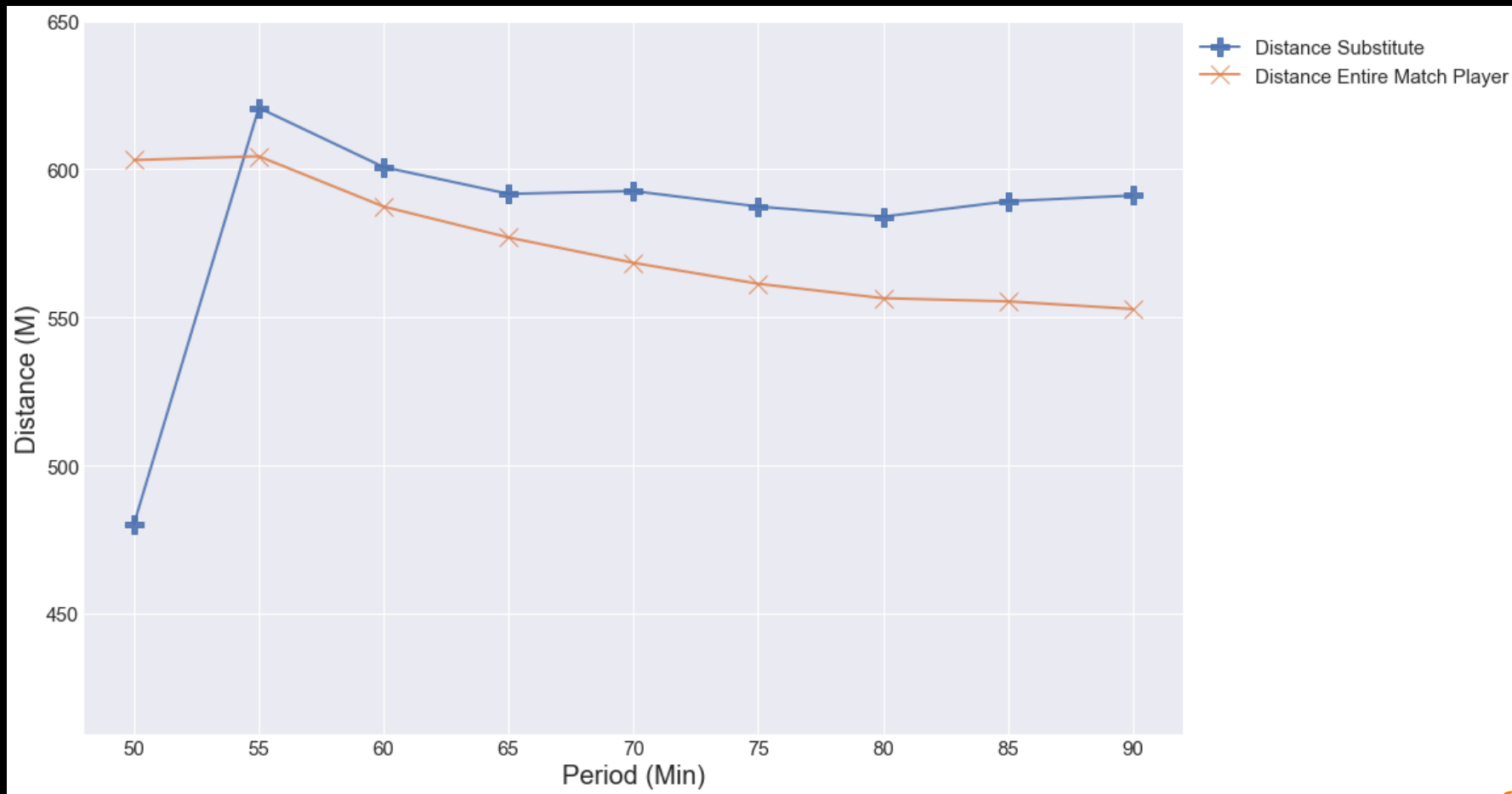
Gemiddelde afstand per helft



Wissels



Verschil in afstand afgelegd door wisselspelers en spelers van de gehele wedstrijd (tweede helft)



Performance van het machine learning model

```
for name, model in models:
    print()
    print('_' * 60)
    print(f'Classification report voor model {name}')

    y_pred = model.predict(X_test)
    print(classification_report(y_test, y_pred, target_names=['Distance reached', 'Distance not reached']))
    #all values
    #y_pred = model.predict(X)
    #print(classification_report(y, y_pred, target_names=['Distance reached', 'Distance not reached']))
```

Classification report voor model rf				
	precision	recall	f1-score	support
Distance reached	0.78	0.81	0.79	23403
Distance not reached	0.80	0.77	0.79	23726
accuracy			0.79	47129
macro avg	0.79	0.79	0.79	47129
weighted avg	0.79	0.79	0.79	47129

Classification report voor model dt				
	precision	recall	f1-score	support
Distance reached	0.72	0.79	0.75	23403
Distance not reached	0.77	0.70	0.73	23726
accuracy			0.74	47129
macro avg	0.75	0.74	0.74	47129
weighted avg	0.75	0.74	0.74	47129

Nauwkeurigheid van de afstandsvoorspelling per 5 min



Werken met de laatste technieken

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Leren door doen

Werken met de laatste technieken

Leren door doen

Continue feedback
& beoordeling van jouw leerdoel

Werken met de laatste technieken

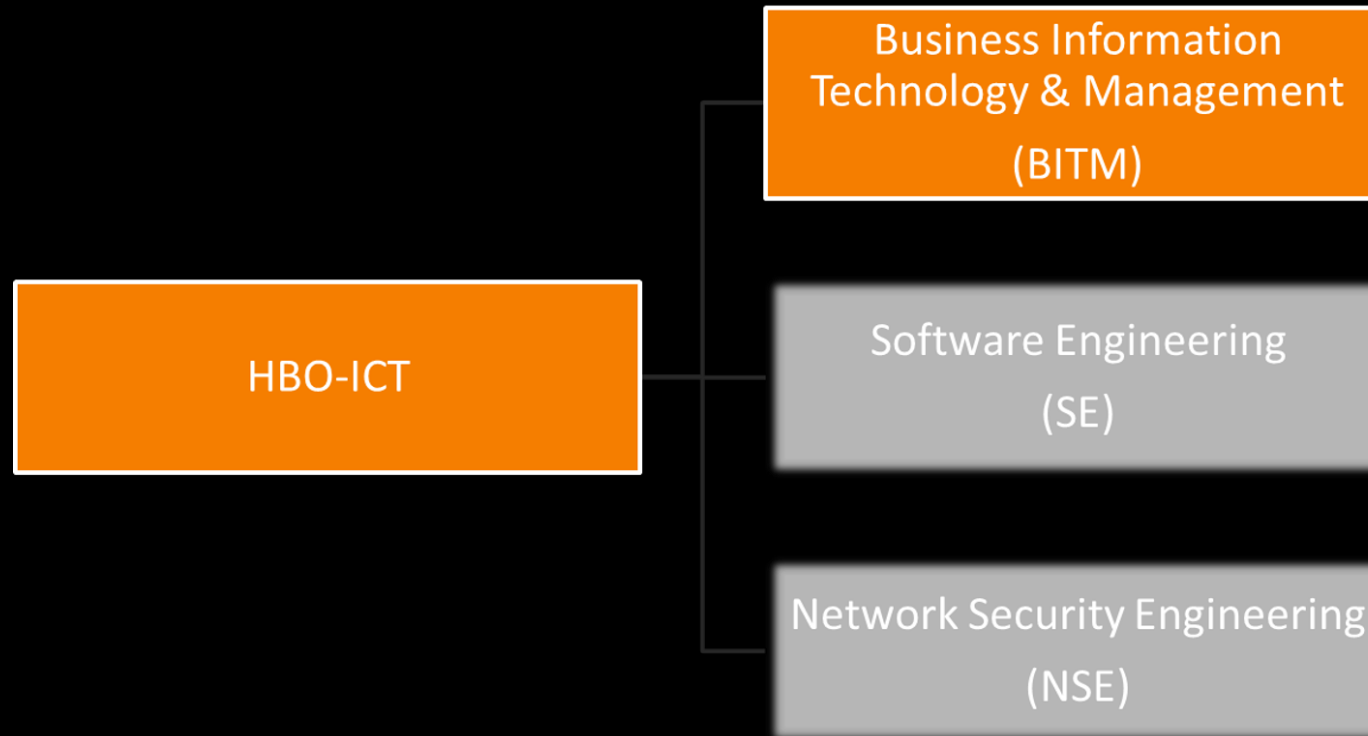
Leren door doen

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& beoordeling van jouw leerdoel

Jouw ontwikkeling staat centraal

Inschrijven via studielink.nl (voor 1 mei)





Hanze
University of Applied Sciences
Groningen



Creative Media & Game Technologies

Information about the programme

share your talent.
move the world.



The programme



Develop and implement with new technology

- Learn how to work with future technologies
- Use game technologies
- Team work, critical thinking
- Be a digital creator and innovator
- Create with purpose for users



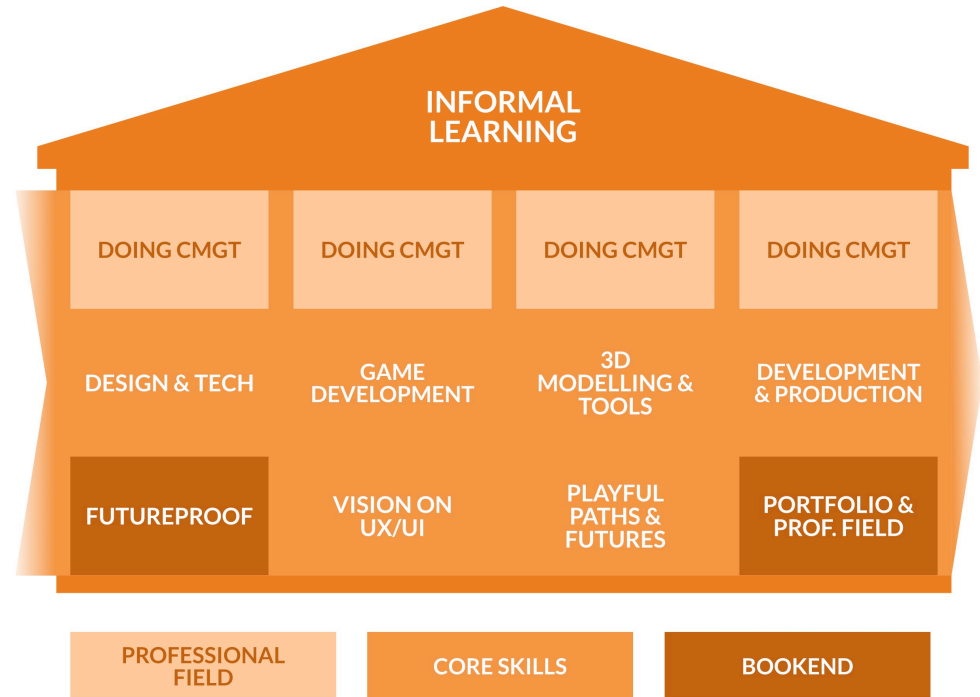
share your talent. **move** the world.

Type of courses offered



Year 1 overview

- Experiment with technology
- Team projects
- UI and UX design
- Develop in 2D and 3D
- Future orientation
- Portfolio



Continued programme



Year 2

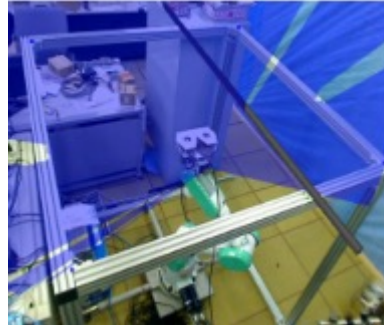
- Virtual reality / Augmented Reality
- Client based projects
- Expand your production pipeline
- Elective courses
- Entrepreneurship
- Portfolio

Year 3

- Minor
- Internship

Year 4

- Elective courses
- Multidisciplinary project and graduation



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Our approach



Engaging environment, active learning

- Learn by doing
 - Make, build, experiment
 - Work with fellow students
 - Committed staff - offline and online
 - Academic counseling
-
- Active community
 - Support in portfolio building
 - Extracurricular activities (game jams, playtesting, guest lectures, makerspace)



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GLOBAL GAME JAM NL

25-27 Januari 2019



Career opportunities

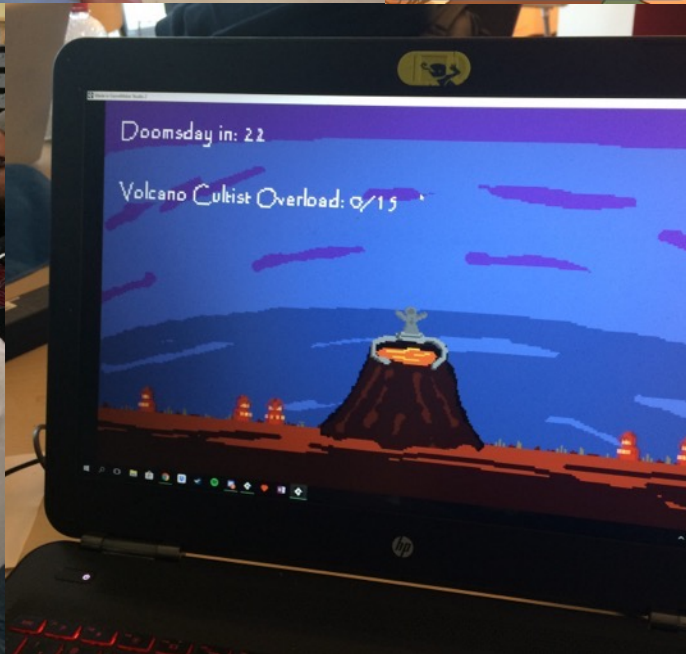
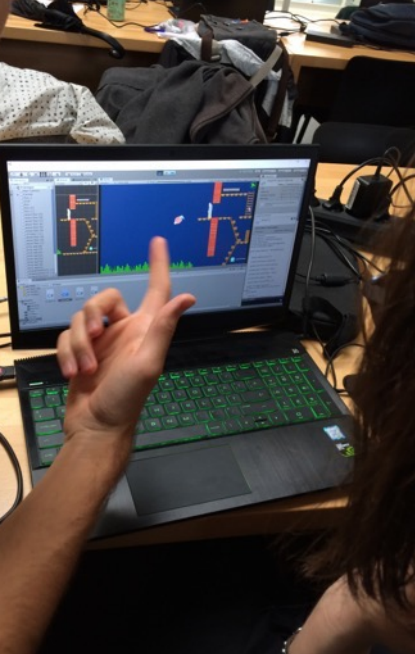
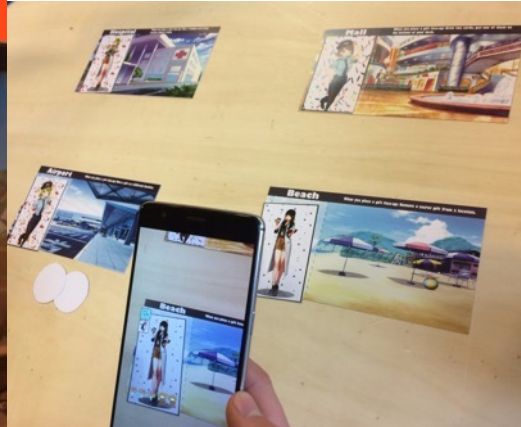


A Foundation in being a Digital Creative

Work at (serious) game companies or bring your expertise to another domain

- Game developer
- UX / UI designer
- VR / AR specialist
- Developer
- 3D / Technical Artist
- Maker / Inventor
- Digital producer
- Startup a company

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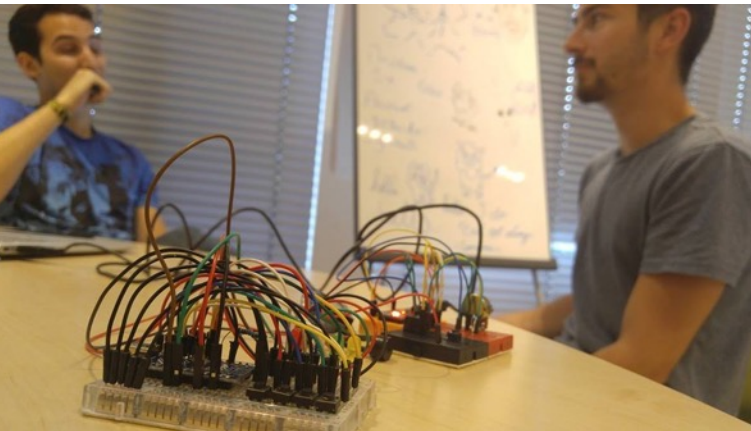


Suited for you



Be a Digital Creative

- Want to make digital products
- Active learning
- Build up portfolio
- Educated as generalist that can specialise





Products

A few examples of projects you can expect in the first / second year

Video Cerebral Palsy:

<https://hanzemag.com/video-games-and-cerebral-palsy/>

Video She Wrote Neon:

<https://www.youtube.com/watch?v=8WJsmpe18P0>

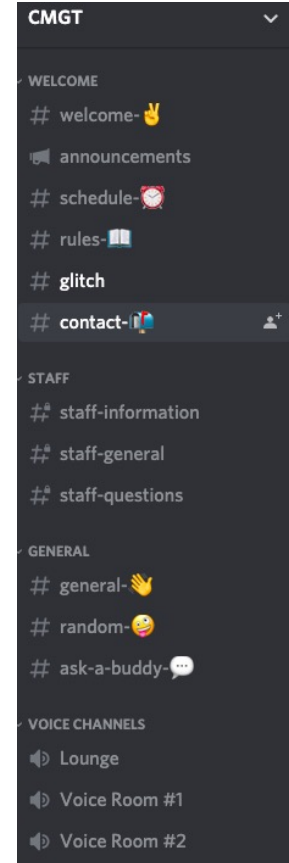


Engage with us on Discord

Talk to students & staff

- You can schedule a talk with students, they are available today
- Student Association GLiTCH presents

<https://discord.gg/4MccGJnybv>



share your talent. move the world.



Arjan van Houwelingen
Lecturer & Counselor
Tabletop Game Designer



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share your talent. move the world.



Aansluiting MBO - HBO

+

Mevr. Mr. Elske Posthuma

Thorbecke Academie - NHLStenden



Aansluiting MBO - HBO

- +Gesprekken met MBO instellingen over vaardigheden
- +Studiecoach
- +Focus op 'leiderschap'
- +Goede praktijkgerichte vaardigheden

Associate Degree

- +Cybersafety & Security
- +Integrale Veiligheidskunde (safety) & ICT (security)
- +Certified Ethical Hacking
- +Alle MBO niveau 4 toegankelijk
- +2 jaar, eventueel uitstromen naar bachelor
- +Voor meer info over AD's: www.nhlstenden.com/ad

The background features several incandescent light bulbs of various sizes, some of which are glowing with a warm yellow light. The bulbs are set against a dark, textured background. Wavy, dashed lines in a light blue or grey color sweep across the scene, adding a sense of movement and depth. The overall aesthetic is modern and artistic.

Dank voor uw aandacht!

vragen?

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