



# Game and Media Technologies


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3 February 2022



Utrecht University




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## Media Technology

Analysis of, and interaction with, media:

- Text
- Images
- Video
- Music
- 3D objects and scenes
- Games

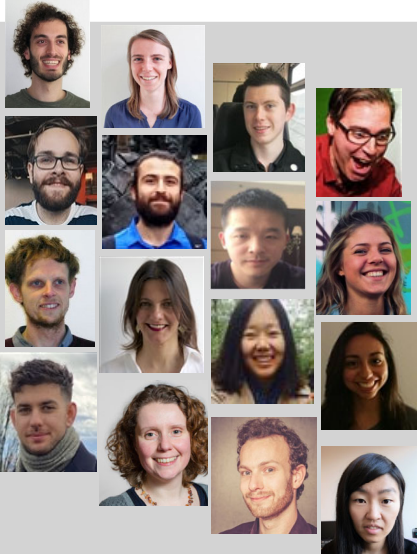


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## Project Members


- Dio Alexandridis (Healthy Play, Better Coping)
- Annette Brons (Healthy Play, Better Coping)
- Chris Ferguson (Reveal)
- Jan Dirk Fijnheer (Power Saver game)
- Ilja Gubins (Cryo ET molecular complexes)
- Georgios Kapidis (Ego-centric recognition)
- Tao Ku (Point cloud recognition)
- Lisa Levelt (Healthy Play, Better Coping)
- Laurens Müter (Real time intelligence)
- Rafaela de Quadros Rigoni (Gamification)
- Iris Ren (Music pattern analysis)
- Nina Rosa-de Jong (AR interaction)
- Alex Stergiou (Video Analysis)
- Mirjam Visscher (Big Data History of Music)
- Max Wolterink (Game-based police training)
- Honglin Yuan (Visual simulation)



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## Faculty Members



Sander Bakkes    Ana Ciocarlan    Wolfgang Hürst    Peter van Kranenburg    Julian Frommel (2022)


Herre van Oostendorp (r)    Remco Veltkamp    Anja Volk    Peter Werkhoven (TNO)    Frans Wiering

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## Themes


- **Multimodal Interaction**  
Wolfgang Hürst, Peter Werkhoven  
with Nina Rosa, Ghazaleh Tanhaei, Laurens Müter
- **Game design, applied games**  
Sander Bakkes, Ana Ciocarlan, Julian Frommel, Herre van Oostendorp  
with Dio Alexandridis, Brunella Botte, Annette Brons, Chris Ferguson, Jan Dirk Fijnheer, Lisa Levelt, Rafaela de Quadros Rigoni, Max Wolterink
- **Analysis and retrieval of music information**  
Peter van Kranenburg, Anja Volk, Frans Wiering  
with Iris Ren, Mirjam Visscher
- **Recognition in text, images, video, 3D objects**  
Remco Veltkamp  
with Ilja Gubins, Georgios Kapidis, Alex Stergiou, Tao Ku, Honglin Yuan



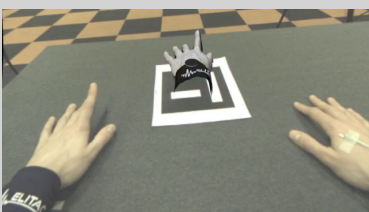

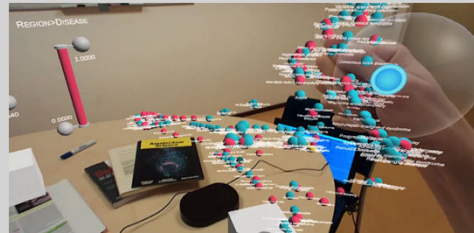
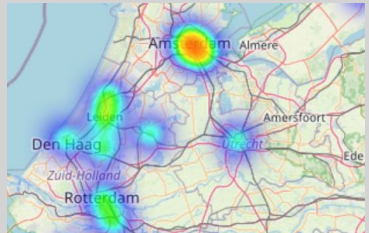
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## Multimodal interaction








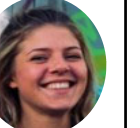
- Player-Avatar Link
- Tactile interfaces
- Interaction with video, 3D, AR on mobiles
- Brain-computer interfaces
- Interactive dashboard in control center


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# Games

- Games for health
- Lifestyle, wellbeing
  - Adaptive Persuasive Technology
  - Player experience
- Hub Healthy Play, Better Coping
  - Reducing loneliness
  - Coping with fatigue



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# Games









- Games for learning
  - Training police officers
  - Cognitive processing of serious games
  - Motivation in Game Based Learning
  - Crisis Management
- Games for sustainability
  - Powersaver game






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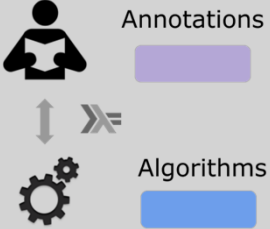






# Music



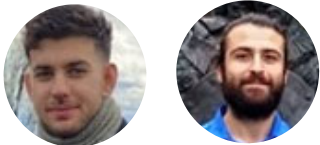
- Analysis of rhythmic, melodic, harmonic patterns in music
- Health and wellbeing
- Cultural heritage, historical data

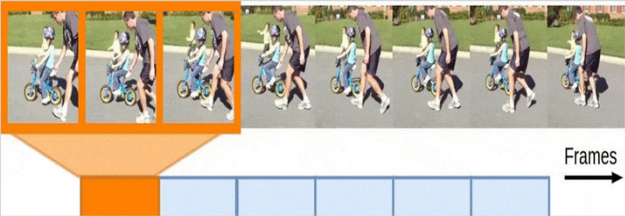

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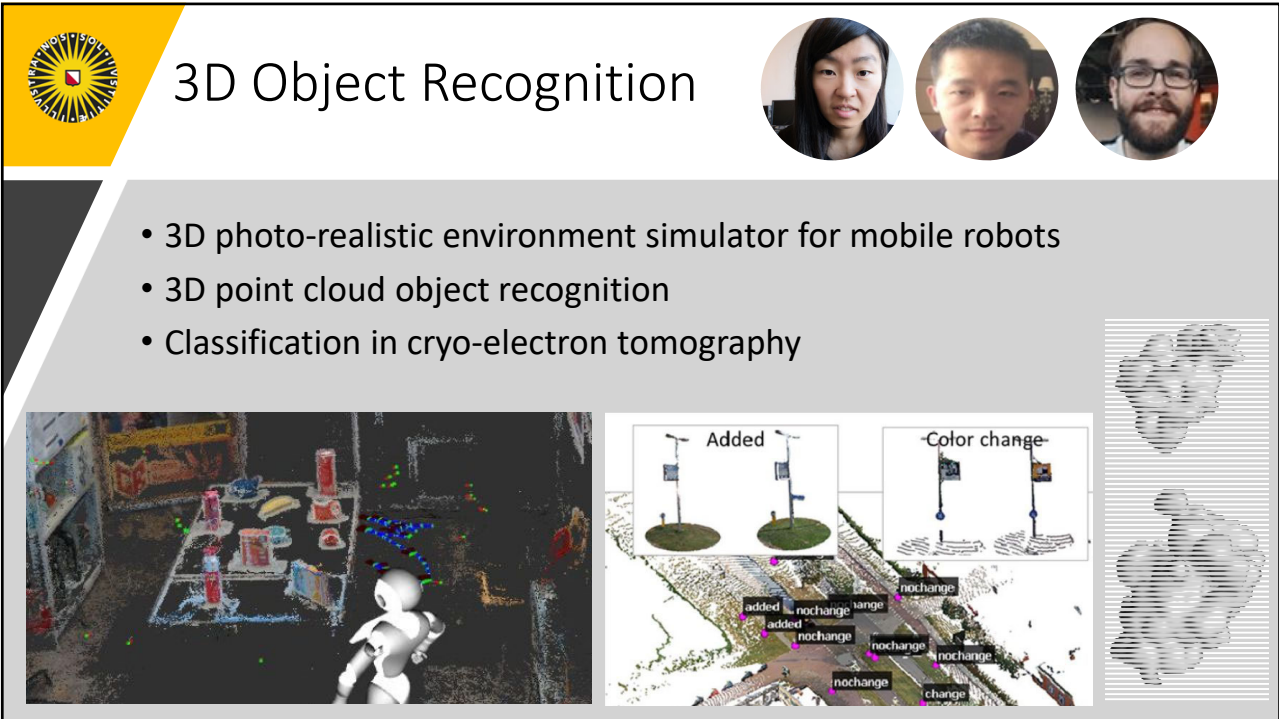
# Video



- With Ronald Poppe
- Action recognition
- Egocentric video recognition
- Object recognition



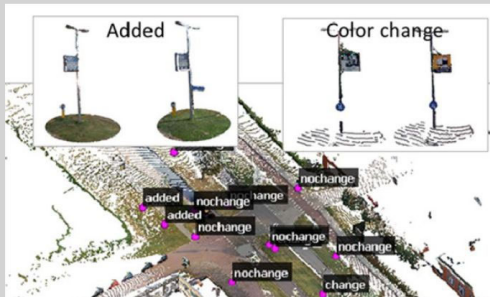




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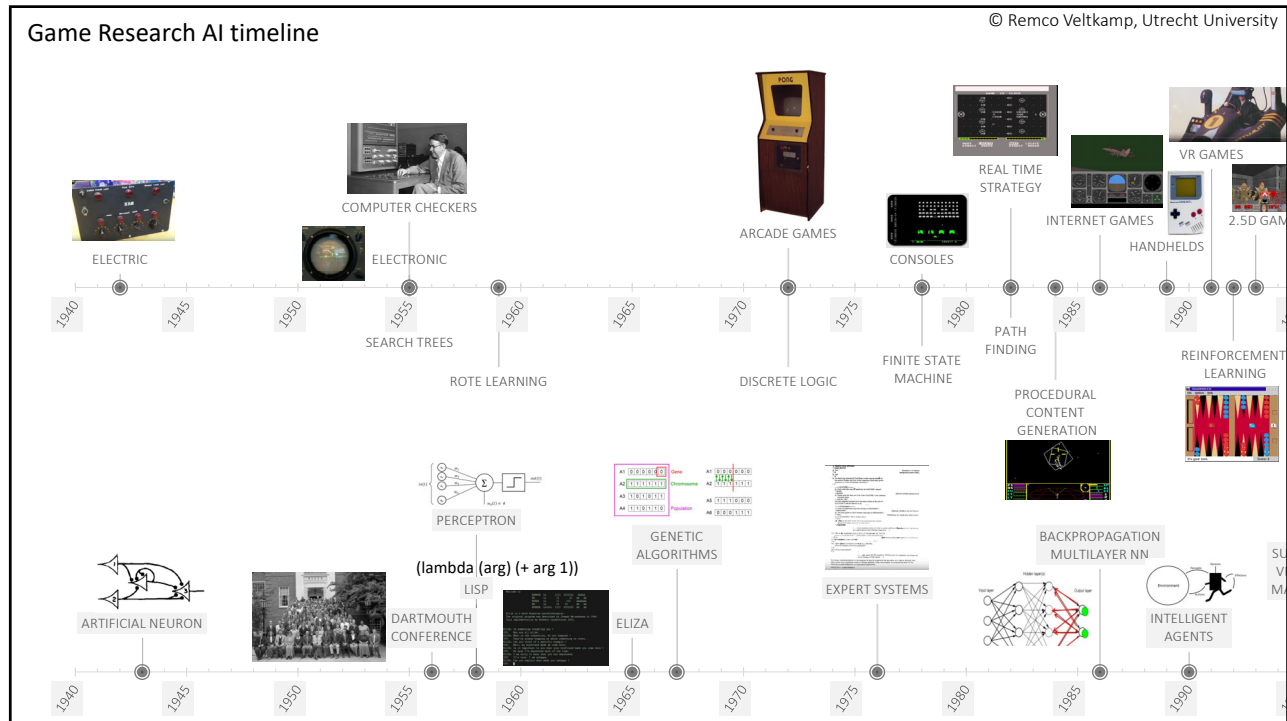


**3D Object Recognition**


- 3D photo-realistic environment simulator for mobile robots
- 3D point cloud object recognition
- Classification in cryo-electron tomography

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# AI Media Lab

- UU
  - Information and Computing Sciences, Humanities, Psychology
- HU, University of Applied Sciences Utrecht
  - Digital Business & Media, Journalism in digital transition, Human Experience and Media Design
- Media Perspectives

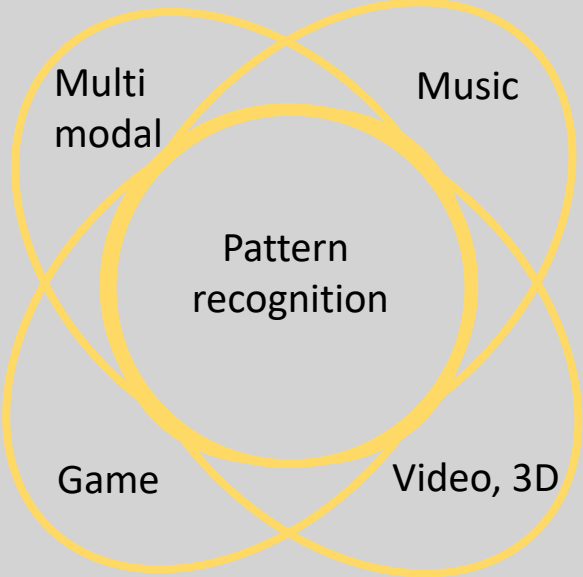


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# Patterns and Trends

- Algorithm design
- Experimental verification
- Human perception



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# What I Am Guilty Of

- New distance metrics with provable properties
  - Proportional Transportation Distance
  - Tonal Pitch Step Distance
- 15+ years of Shape Retrieval Challenges

SHREC

