



Berlin Conference for Student Research 2024

Liebe Teilnehmende, liebe Unterstützende,

das Organisationsteam möchte sich hiermit nochmal ganz herzlich bei Ihnen allen dafür bedanken, dass Sie an unserer Konferenz teilgenommen haben und damit zum Erfolg dieser Veranstaltung beigetragen haben.

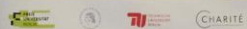
Ein besonderer Dank geht an unsere Vortragenden für ihre inspirierenden Beiträge, an die Workshopleitenden für die Organisation praxisnaher Sessions sowie an den Caterer, der uns hervorragend versorgt hat. Auch unserem Fotografen danken wir für das Einfangen unvergesslicher Momente.

Dank an alle Teilnehmenden – Ihr habt diese Veranstaltung zu einem Erfolg gemacht. Wir freuen uns auf ein Wiedersehen im nächsten Jahr!

Mit ganz herzlichen Grüßen,
das StuROP^x-Team



Berlin Conference for Student Research



Berlin University Alliance

2

Haus

EG
Sozialraum
WC
Behinderten-WC

Kopierer

2

Haus

Musik an der
Humboldt-
Universität

3.OG
Fritz-Reuter-Saal
1.OG
Hugo-Distler-Saal

Seminarräume
2.102, 2.302, 2.402



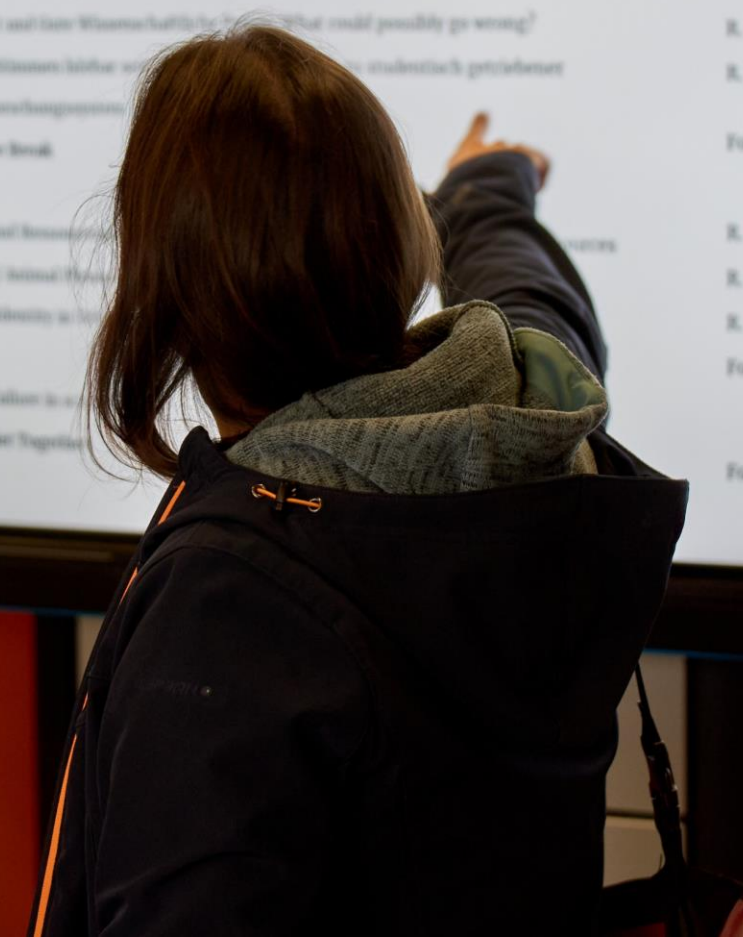


Berlin University
Alliance



Berlin Conference for Student Research 2024

09:30 - 10:00 Begrüßung / Welcome	Foyer 4, OG
10:00 - 10:30 Panel A	R. 1.401
Session A: 20 and Beyond: Inquiries to Artistic	R. 1.401
Session A: Two Substances and Morphology / 20 Substances and Morphology	R. 1.404
Session A: In the South and in the North / In the City and in Outer Space	R. 1.404
10:30 - 11:00 Mittagessen / Lunch break	Foyer 4, OG
11:00 - 11:30 Workshop Panel B	
Workshop B 1: <i>Wirklich-partizipative Ansätze: geht es mit der Forschung? - Ziele, Grenzen, Nutzen und Beteiligungsdemokratie</i>	R. 1.401
Workshop B 2: <i>Forschungsqualität und ihre Wissenschaftliche? - "What could possibly go wrong?"</i>	R. 1.401
Workshop B 3: <i>Wird akademische Strukturen höher oder niedriger? - studentisch getrieben</i>	R. 1.404
<i>Veränderung in Forschungsprozessen</i>	
11:30 - 12:00 Kaffeepause / Coffee break	Foyer 4, OG
12:00 - 12:30 Panel C	
Session C: <i>Perseus, Engagement und Resonanz</i>	R. 1.401
Session C: <i>Transaktion, Vergegenwärtigung, ...</i>	R. 1.401
Session C: <i>Cultural Heritage and Identity in ...</i>	R. 1.404
12:30 - 13:00 Closing Talk	Foyer 4, OG
13:00 - 13:30 Lunch	Foyer 4, OG





A photograph of two women in conversation. The woman on the left has curly brown hair and wears glasses and a dark patterned top. The woman on the right has straight brown hair and wears a black blazer over a striped shirt. They are standing in front of a red backdrop with the text 'Berlin University Alliance' and a white logo. There are green plants on either side.

Berlin University
Alliance

WELCOME

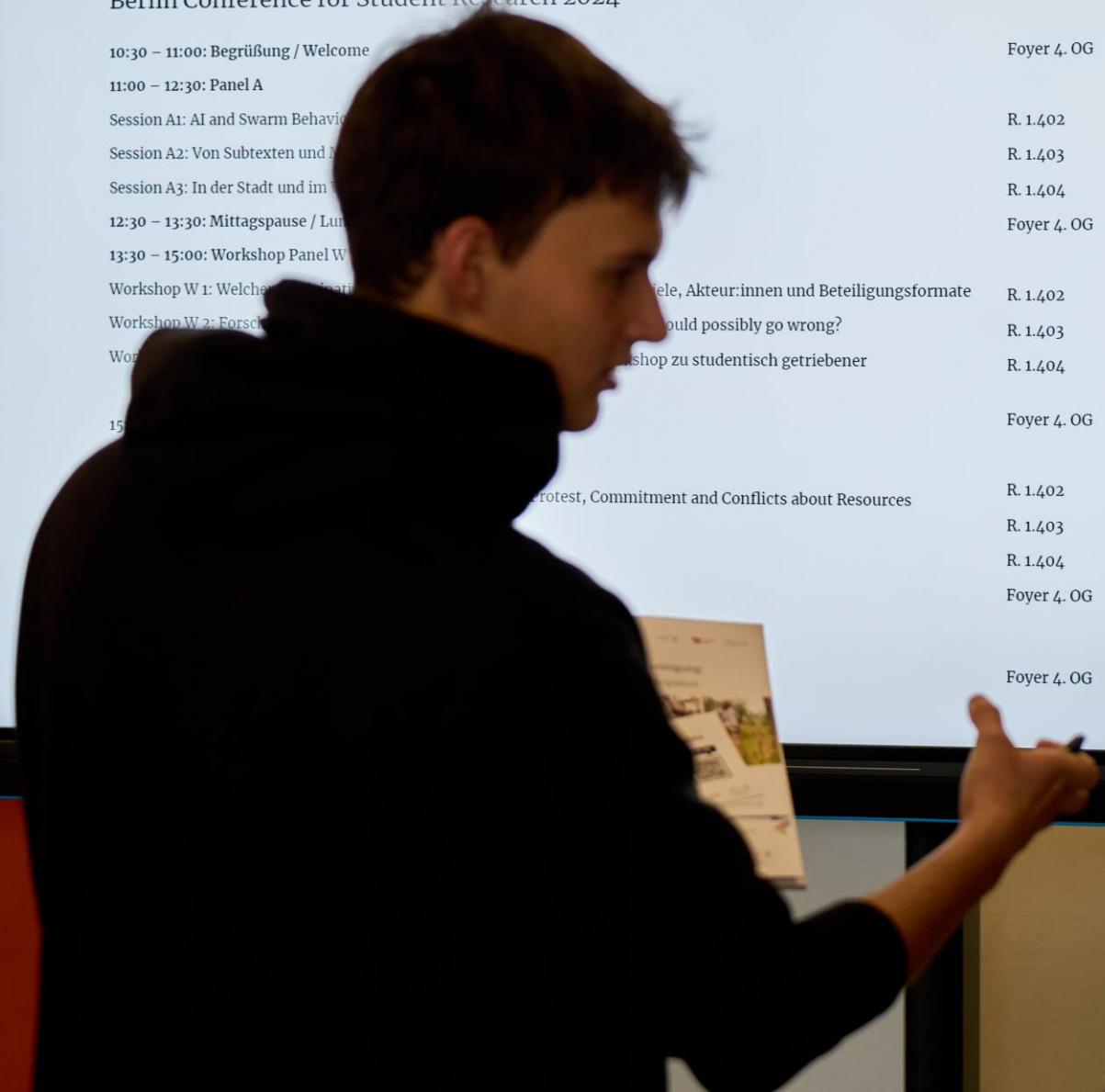






Berlin Conference for Student Research 2024

10:30 – 11:00: Begrüßung / Welcome	Foyer 4. OG
11:00 – 12:30: Panel A	
Session A1: AI and Swarm Behavior	R. 1.402
Session A2: Von Subtexten und ...	R. 1.403
Session A3: In der Stadt und im ...	R. 1.404
12:30 – 13:30: Mittagspause / Lunch	Foyer 4. OG
13:30 – 15:00: Workshop Panel W	
Workshop W 1: Welche ... , Akteur:innen und Beteiligungsformate	R. 1.402
Workshop W 2: Forsch ... could possibly go wrong?	R. 1.403
Workshop W 3: ... Workshop zu studentisch getriebener	R. 1.404
15:00 – 16:30: ...	Foyer 4. OG
... Protest, Commitment and Conflicts about Resources	R. 1.402
	R. 1.403
	R. 1.404
	Foyer 4. OG
	Foyer 4. OG







Berlin Conference
for Student Research
2024

Felix



Of Subtexts and Metaphors

1. K-Pop und Versöhnung
- 2.

WHAT IS RIGHT FOR THE ANTHROPOCENE

POLITICAL METAPHORS

Antonia Miller-Goldman
Coordinator Dr. Elena...







Jennifer
Isie /s/he
Orga - Team



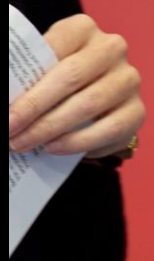




University



Team





Julia
she / her
StuROX-Team

University







Logo of the Berlin Conference for Student Research

Berlin Conference for Student Research

Wardrobe

Go up and the elevator and then turn right

QR code

Logo of the Berlin Conference for Student Research

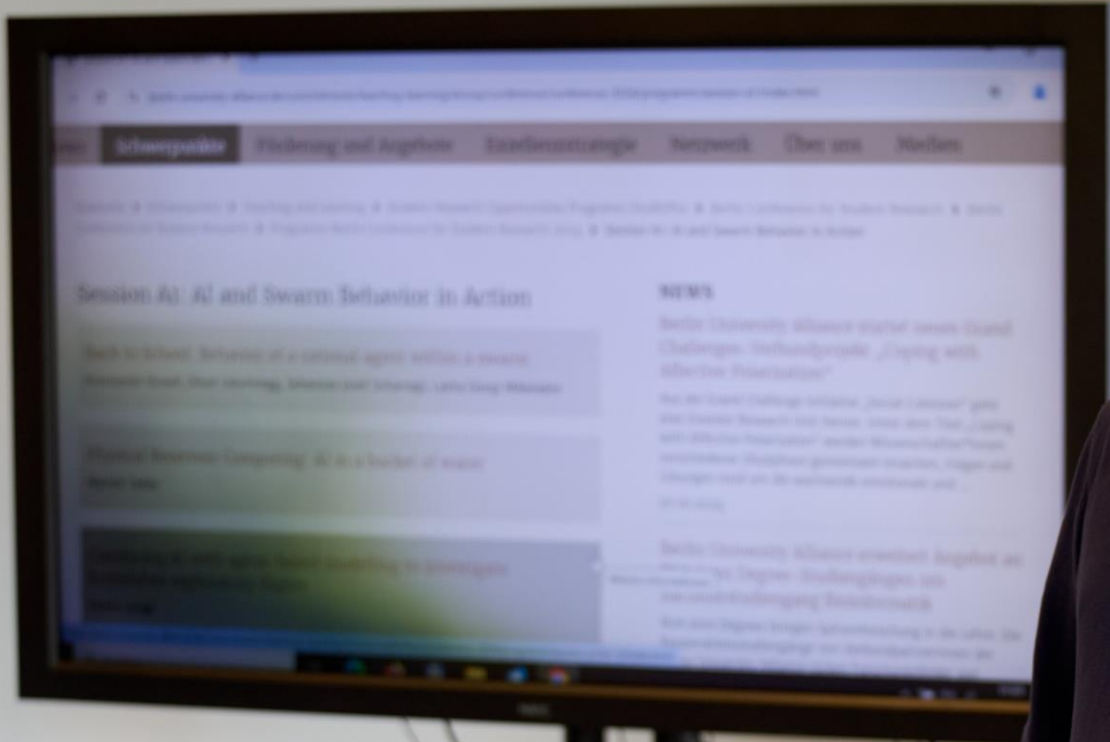


Nebil
he/him

Konstantin
Strauß

VIO

METAL
MUSICIEN





BACK TO SCHOOL: BEHAVIOR OF A RATIONAL AGENT WITHIN...

Abstract: In this paper, we investigate the behavior of a rational agent within a complex environment. The agent is modeled as a simple rule-based system that interacts with its environment through a set of actions and observations. The environment is modeled as a grid world with obstacles and a goal. The agent's task is to find the shortest path from the start to the goal. We compare the performance of the agent against a baseline algorithm and show that our approach achieves significantly better results.

COMBINING ARTIFICIAL NEURAL NETWORKS WITH AGENT-BASED MODELLING TO INVESTIGATE BUMBLEBEE EXPLORATORY FLIGHTS

By: [Author Name], [Institution]

INTRODUCTION

Bumblebees exhibit complex exploratory flight patterns that are difficult to understand through traditional models. This study combines Artificial Neural Networks (ANN) with agent-based modeling to investigate these patterns. The ANN is trained on observed flight data to predict the next action of a bumblebee in a simulated environment. The agent-based model simulates the interactions between multiple bees and their environment, allowing us to study emergent behaviors.

METHODS

The study involves data collection from real bumblebees and the development of a simulation. The ANN is trained on a dataset of flight paths. The agent-based model uses the ANN to control virtual bees in a simulated environment. The performance of the ANN is evaluated against the observed flight patterns.

RESULTS

The ANN successfully predicts the next action of a bumblebee with a high degree of accuracy. The agent-based model shows that the complex flight patterns of bumblebees can emerge from simple individual rules. The results suggest that the combination of ANN and agent-based modeling is a powerful tool for studying complex biological systems.

DISCUSSION

The findings of this study have implications for understanding the cognitive abilities of bumblebees and for the development of more sophisticated models of animal behavior. The use of ANN in agent-based modeling provides a new perspective on the relationship between individual actions and collective behavior.

Navigation: [Home](#) | [Über uns](#) | [Kontakt](#) | [Impressum](#) | [Datenschutz](#)

Session AI: AI and Swarm Behavior in Action

NEWS

Derive University Alliance Market...
Challenges - Herausforderungen...
AI in der...
Derive University Alliance...
AI und...
Derive University Alliance...
AI und...
Derive University Alliance...
AI und...

1. K-Pop und Ver
2. Ontology for ...cene
3. "Vermögens

Phase 3 Konzeption ein

Phase 4 Überarbeitung

Einen detaillierten Übe

OSAKA UNIVERSITY
TRIDENTS
FOOT

Julius Gact

89







The 21st century will be a century when...

- Role of "music" in the past as a tool
- Use for propaganda (Nazi Germany vs. Neue Deutsche Welle)
- K-Pop since 1990s
- Influence on younger generation (Gen. Z)
- "Lee Nak-Yon: Kpop has a bigger role as an ambassador for SK than PM"
- Trum's Presidency
- The rise of Korea as a superpower
- A way to reconciliation
- History- Politics- Peace

aphem
s
propocere
Protest

https://w
com/out
at-is-k-p
humiliat



HUMBOLDT UNIVERSITY
MILEYTS
89

Berlin Conference for Student Research 2024

an part of the Student Research Organization Program

mailto:rsop@humboldt-university.de

Program on October 2nd at Humboldt University in Berlin Mitte

Humboldtstrasse 24, 10117 Berlin (Room 4, Floor 4)

SCAN ME

09:30 - 12:00	Welcome
10:00 - 12:30	Panel A
12:30 - 13:30	Lunch Break
13:30 - 15:00	Workshop Panel W
15:00 - 15:30	Coffee Break
15:30 - 17:00	Panel B
17:00 - 18:00	Evening Talk
18:00	Get Together

Berlin C
10:30 - 11:00
11:00 - 11:30
11:30 - 12:00
12:00 - 12:30
12:30 - 13:00
13:00 - 13:30
13:30 - 14:00
14:00 - 14:30
14:30 - 15:00
15:00 - 15:30
15:30 - 16:00
16:00 - 16:30
16:30 - 17:00
17:00 - 17:30
17:30 - 18:00
18:00 - 18:30















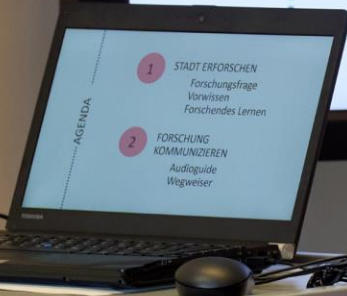
AGENDA

1

STADT ERFORSCHEN
Forschungsfrage
Vorwissen
Forschendes Lernen

2

FORSCHUNG
KOMMUNIZIEREN
Audioguide
Wegweiser



METHODOLOGY

PHASE I

- Comprehensive Reading
- Collaborative Learning
- Problem Solving

PHASE II

- Closing The Right Gaps
- Creating Self-Directed Learning in the Classroom
- Working with an Online Learning Environment

PHASE III

- Producing Public Products for the Community

Whiteboard with notes and diagrams.



Classroom desks with laptops and water bottles.



Informational text on a poster or document pinned to the wall, including a QR code.



LEBEE EXPLORATORY FLIGHTS

Stanojlovic, Felix Leyendendecker, Keanu Lange, Taha Ilhan

ION



METHODS

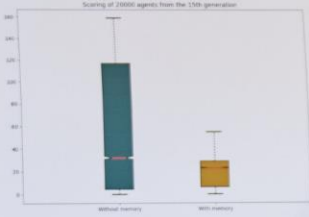
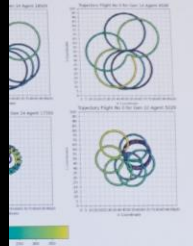
ARTIS involves exploration and exploitation
1. During exploration, bees execute
ations of food sources. Recent
ve shown that these flights are influenced
2, 3].
end their trips at the nest, resulting in
t curvy trajectories that enlarge with
outes to known food sources,
ms to replicate these exploratory
fficial neural networks, focusing on the
olved.



- Agent based simulation of 20 000 agents
- Agents have a neural network functioning as its cognitive system
- Simulated evolution across 15 generations
- Random mutations at each generation
- Selection based on two criteria: area explored and ability to return to the hive

ed significantly higher average exploration scores ($M = 60.2, SD = 54.4$) compared to the memory condition. The no-memory condition was considerably broader in the no-memory condition, with scores ranging from 0 to 159, indicating in contrast, the memory condition exhibited a narrower distribution of scores, ranging from 0 to 55.

Best agents



Statistical analysis revealed that the differences in exploration scores between the two conditions were highly significant, $t(21983)=105.78, p < .001$. The effect size, calculated as Cohen's d , was large ($d=1.06$), indicating a substantial difference between the two groups. The 95% confidence interval for the difference in means was [40.89, 42.44], further supporting the robustness of these results.

emory does not contribute significantly to an increase in the exploration area when the agents are required to return to the nest. Agents without memory explore significantly larger areas, albeit with increased variability in performance compared to those with memory.

N

emory may be critical for resource exploitation and returning to known locations, it may be more important during exploitation phases. The results hint at the possibility that exploratory flights rely more on stochastic search patterns, rather than on learned spatial information. This contrasts with the beneficial trait in foraging strategies. However, the memory implementation in our model—based on a simple neural network—may not fully capture the complexity of memory usage in real natural systems. Future research should include these factors and incorporate natural field studies to validate the model.



new perspective on the cognitive processes underlying bumblebee foraging, suggesting avenues for further research on how memory as a cognitive tool influences foraging strategies, with potential implications for pollinator conservation.

Barron, M. C., Lim, K. S., & et al. (2019). The ontogeny of bumblebee foraging strategies: From naive explorers to experienced foragers. *PLoS One*, 14(10), e178681.
(2023). Modeling bee movement shows how a perceptual bias influences flower discovery. *PLoS Comput Biol* 19(3): e1010558.
Hittka L. (2016). Life-Long Radar Tracking of Bumblebees. *PLoS One* 11(10): e160333.



Felix

Physical Reservoir Computer

Cyber-Physical Systems
in Mechanical Engineering TU Berlin

PCA9685 16 Channel 12 Bit PWM Servo Driver

Raspberry Pi 3

Dr. Mariah Yacov | mariah.yacov@tu-berlin.de | tu.berlin/cpsms









Method

1


Alternative crust subduction of ro undifferentiated ice-r the core, with adjust of 850 kg/m³ [2], 910 kg/m³ [3, 4].



Figure 2. (a) Pre-subduction phase with a mixed ice crust (orange dots), differentiated ice crust (light blue), subhydrated outer core (light brown), and consolidated ice. Active subduction with ice descending toward the upper phase, with only an icy crust remaining.



Current available maps

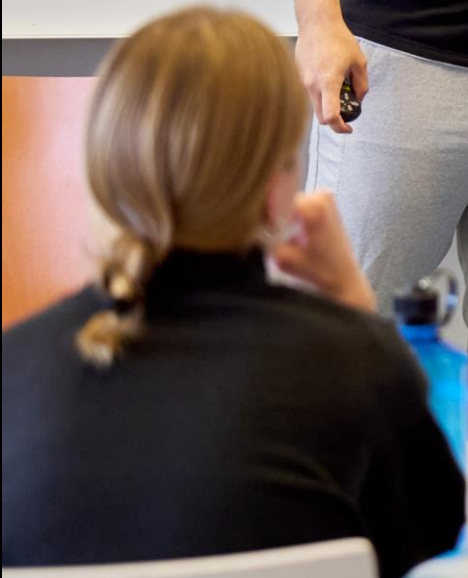


- German Aerospace Center DLR map and atlas [7]
- Lunar Planetary Institute (LPI) map.
- Moscow State University of Geodesy and Cartography (MIIGAik) map.
- US Geological Survey (USGS) map.

- Global Enceladus map created using images from Cassini flybys, with Voyager images filling in the gaps in Cassini's coverage.
- Equidistant (simple cylindrical) projection; scale: 440 m / pixel at the equator. (Projection used mean radius: 252 km).

Enhancing Enceladus Exploration | V.A. Reinoso Rojas | WS 2023

9



- ... und Metaphors
1. K-Po... Versöhnung
 2. On... for the Anthropocene
 3. "Ver... " stiller Protest

- Group „Gedenkort MessiasKapelle“
im Wintersemester 23/24
2. Besuch der MessiasKapelle +
Gespräch mit Gerlind Lachenicht
 3. Recherche zu Vermögens-
erklärungen, MessiasKapelle,
Taufe von als Jüd*innen verfolgte
Christ*innen, einzelnen Personen
 5. Veröffentlichung eines
Blogbeitrages auf <http://berlin.de/kircheimns/>

Sina Drees
(2024)



BACK TO SCHOOL: BEHAVIOR OF A RATIONAL AGENT WITHIN A SWARM

Abstract: In this paper, we study the behavior of a rational agent within a swarm of agents. We propose a model where the agent's behavior is influenced by the swarm's collective behavior. We analyze the agent's behavior in different scenarios and show that it exhibits complex, emergent behavior. We also discuss the implications of our findings for swarm robotics and social networks.

Introduction: In this paper, we study the behavior of a rational agent within a swarm of agents. We propose a model where the agent's behavior is influenced by the swarm's collective behavior. We analyze the agent's behavior in different scenarios and show that it exhibits complex, emergent behavior. We also discuss the implications of our findings for swarm robotics and social networks.

Methods: We use a combination of analytical and numerical methods to study the agent's behavior. We first derive a set of equations that describe the agent's motion and the swarm's collective behavior. We then solve these equations numerically for different parameter values and initial conditions. We also perform simulations to visualize the agent's behavior and the swarm's collective behavior.

Results: We show that the agent's behavior is highly dependent on the swarm's collective behavior. In particular, we find that the agent's behavior exhibits complex, emergent behavior that is not easily predictable from the individual agent's behavior. We also show that the agent's behavior is robust to changes in the swarm's composition and structure.

Conclusion: Our results show that the behavior of a rational agent within a swarm is highly complex and emergent. This has important implications for swarm robotics and social networks. We believe that our findings will be useful for understanding the behavior of agents in complex systems.

AGENT-BASED MODELLING TO INVESTIGATE BUMBLEBEE EXPLORATORY FLIGHTS

by Agnieszka Bielecka, Felix Leymann, Michael Kerns, Lutz Preuss

Introduction: Bumblebees are known for their exploratory flights, which are essential for finding new food sources. We use agent-based modeling to investigate the underlying mechanisms of these flights. We propose a model where the bees' behavior is influenced by their internal state and the environment. We analyze the model's behavior in different scenarios and show that it exhibits complex, emergent behavior. We also discuss the implications of our findings for understanding the behavior of bees in natural environments.

Methods: We use a combination of analytical and numerical methods to study the bees' behavior. We first derive a set of equations that describe the bees' motion and their internal state. We then solve these equations numerically for different parameter values and initial conditions. We also perform simulations to visualize the bees' behavior and their internal state.

Results: We show that the bees' behavior is highly dependent on their internal state and the environment. In particular, we find that the bees' behavior exhibits complex, emergent behavior that is not easily predictable from the individual bee's behavior. We also show that the bees' behavior is robust to changes in the environment's structure and composition.

Conclusion: Our results show that the behavior of bees is highly complex and emergent. This has important implications for understanding the behavior of bees in natural environments. We believe that our findings will be useful for understanding the behavior of other animals in complex systems.



PHASE II:

- Choosing The Right Ontology
- Creating Cell-Groups focused on specific theoretical frameworks
- Writing text based on collective inputs and feelings

PHASE III:

- Producing Radio Podcast (Text Recordings and Audio Editing)











