

Hegau Bodensee Seminar
in cooperation with the Zukunftskolleg at the University of Konstanz

University Day 2025

“Nature meets Technology: From lions, smart farming and artificial intelligence in language”

Friday, 21 November 2025, 9:00-13:00,
Zukunftskolleg (Y building), University of Konstanz

*The Zukunftskolleg is an Institute for Advanced Study (IAS) at the University of Konstanz. It offers 2-year and 5-year fellowships for early career researchers (Postdocs). The Zukunftskolleg's **5i** strategy fosters early independence with an **international**, **intergenerational**, **intra-university** and **interdisciplinary** angle. With its ZUKOnnect Fellowships (Zukunftskolleg Konnect Fellowships), the Zukunftskolleg supports early career researchers from Africa, Asia and Latin America, who do research that fits to one of the thirteen departments at the University of Konstanz.*

1) Workshops

- ✓ 3 interdisciplinary workshops à approx. 10 pupils offered by ZUKOnnect Fellows from different disciplines
- ✓ Common language: English

2) Wrap-up / Transfer

- ✓ After the workshop, the participants will receive a question / task of the Fellows which they have to prepare at home; the pupils have to submit their results by 10 December to be published on the website of the Zukunftskolleg.
- ✓ The Zukunftskolleg will write a report about the University Day which will also be published on the ZuKo website.
- ✓ Both the participants and the workshop organizers will receive a certificate.

Workshop 1

Anushree Mishra (ZUKonnnect fellow from India / Department of Linguistics)

“The Science Behind Communication: How Linguists Understand Language”

Abstract:

Why can we instantly tell that *“the cat chased the dog”* is fine, but *“cat the chased dog the”* isn’t — even though both use the same words? What invisible rules guide us when we speak, text, or even post memes? In this interactive workshop, we’ll explore how linguists uncover the hidden systems behind human language.

Through hands-on activities, you’ll analyze authentic linguistic data, test hypotheses about how languages work, and experience what researchers actually do when they study syntax—the architecture of sentences. We’ll connect these patterns to real-world applications: from teaching Siri to understand commands, to preserving endangered languages, to understanding how your multilingual brain juggles German, English, and other languages all at once.

No previous linguistics knowledge required—just curiosity about why language works the way it does. Come prepared to think like a scientist, question everything you thought you knew about grammar, and maybe walk away wanting to become a linguist yourself.

Workshop Agenda:

- a. **Icebreaker Activity ‘The Broken Sentence Challenge’** - *Show students that grammar rules vary across languages, (2) they already have linguistic intuitions, (3) this will be fun and interactive.*
- b. **Introduction about Linguistics and Speaker**
Activity 1: ‘Word Order Detective’. *Understand that word order follows patterns, different languages have different systems, and linguists use systematic observation to uncover rules.* Discussion
Activity 2: ‘The Question Word Mystery’. *Studying question formation in German, English, and Hindi:* Discussion
Activity 3: ‘Real-World Applications’: *AI & Voice Assistants Demonstration: Language Documentation*
- c. **Career Insight & Pathways**
- d. **Addressing Questions & Misconceptions**

Preparation Materials:

- **Answer these questions:**
 - i. How many languages can you speak or understand (even a little)? List them.
 - ii. Have you ever noticed a “rule” in German or English that you can’t quite explain? What is it?
 - iii. What do you think linguists do all day?
 - iv. One question you have about how language works
- **Watch Youtube Video:** <https://www.youtube.com/watch?v=RQW3zC5QaY4>

Workshop 2

Ines Neji (ZUKOnnect Fellow from Tunisia / Department of Computer and Information Science)

“Inside the Mind of AI: Teach Your Own AI to Recognize Handwritten Digits”

Abstract:

Have you ever wondered how computers can recognize your handwriting, identify faces, or even play games like a human? In this workshop, you will step into the shoes of an AI scientist! Using Google Colab, you will train your own AI model to recognize handwritten digits, complete missing pieces of code, and see how your model learns from data — all in real time.

This is a hands-on, interactive session: you’ll experiment, make predictions, and even tweak the AI to see what works best. By the end, you’ll not only understand how AI thinks, but also how it is used in real-world applications — from apps and games to cutting-edge scientific research. No prior coding experience is needed — just curiosity and a willingness to explore!

Workshop Agenda:

- a. **Welcome & Icebreaker:** Discuss AI in daily life
- b. **How Machines Learn:** Visual explanation & examples
- c. **Hands-On Colab:** Fill in code to train AI on **MNIST dataset**
- d. **AI Challenge:** Test, modify, and explore models
- e. **Real-World AI:** Applications & ethical discussion
- f. **Reflection & Q&A:** Share results and thoughts

Preparation Materials:

- **Watch a Short Video:**
“How Machines Learn” – BBC, 3 min
<https://www.youtube.com/watch?v=R9OHn5ZF4Uo>
- **Optional Hands-On Exploration:**
Google Teachable Machine – Try training a model with images, sounds, or poses:
<https://teachablemachine.withgoogle.com/>
- **Short Article:**
What is Artificial Intelligence? – Britannica Kids: <https://kids.britannica.com/kids/article/artificial-intelligence/390648>
- **Equipment needed:**
 - Laptop or tablet with internet access
 - If available: Google account (for Colab)
- **Optional Brainstorming Questions:**
 - Where do I see AI in daily life?
 - Which tasks would I trust an AI to do?
 - Can AI make mistakes? How would I notice them?

Workshop 3

Uakendisa Muzuma (ZUKOnnect Fellow from Namibia / Department of Biology)

“Connected by Nature: People, Technology, and Lions in Namibia”

Abstract:

This 3-hour workshop introduces students to Namibia, one of Africa’s most wildlife-rich and community-driven countries, and explores how people and technology work together to protect both livestock and large carnivores, especially lions. Participants will first learn what “coexistence” means in the context of African conservation, then discover how innovations such as **GPS collars, smart apps, solar flashlights, predator-proof kraals, and rapid response systems** help local people live safely with lions. By meeting conservation practitioners (rangers and veterinarians), seeing real technology in use, and taking part in mapping and reflection activities, students will understand how communities and science collaborate to ensure a future where both people and wildlife can thrive.

Workshop Agenda:

- a. **Introduction: Namibia and the Idea of Coexistence** *Where is Namibia? What is coexistence? Why lions?* their ecological and cultural importance, and the challenges of livestock predation. The facilitator explains that Namibia’s rural communities share the land with lions and have developed creative, non-lethal ways to prevent conflict.
- b. **Understanding Technology in Conservation** Discussion with visuals showing:
 - ♦ **GPS collars** – how lions are safely darted by wildlife veterinarians and fitted with collars that send location data to rangers.
 - ♦ **Smart apps & rapid response:** how real-time alerts help prevent conflict.
 - ♦ **Predator-proof kraals & solar flashlights** - local innovations that protect livestock at night. Interactive.

Q&A: “Which of these technologies could you imagine developing in your own country?”
- c. **Hands-On Activity: “Tracking a Lion’s Journey”** Students receive printed maps with data points representing lion movements. They plot these movements and identify potential conflict zones (villages, water points). Discussion: “How can technology help prevent problems here?”
- d. **Community and Conservation** Short video talk by a **community ranger**:
 - ♦ Emphasis on *teamwork between science and local knowledge*.
- e. **Group Reflection: “Technology with Purpose”** Students discuss in small groups:
 - ♦ What surprised them about Namibia?
 - ♦ What are the benefits and limits of technology in conservation?
 - ♦ How can human responsibility complement innovation? Groups share short reflections.
- f. **Wrap-Up: Connected by Conservation** Final circle - each student shares one new thing they learned about Namibia, coexistence, or the role of technology in protecting wildlife. Group photo and closing words.

Preparation Materials:

- No prior knowledge required.
- Be ready to learn through discussion and participation rather than lecture.