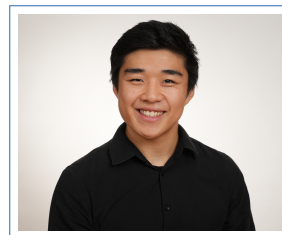


# Kai Li

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in Kai-Li  
SumoPikmin



## Education

- Apr 2024 – Mar 2026 **M.Sc. Computer Science (Grade: 1.1 / 5 (A))**, *Technical University Darmstadt*, Darmstadt, Germany  
**Specialization:** Machine Learning, Multimodal AI, and Generative AI
- Feb 2025 – June 2025 **Exchange Semester**, *National Taiwan University*, Taipei, Taiwan
- Oct 2020 – Dec 2024 **B.Sc. Computer Science (Grade: 1.52 / 5 (A-))**, *Technical University Darmstadt*, Darmstadt, Germany  
**Specialization:** Natural Language Processing and Artificial Intelligence
- Feb 2025 – June 2025 **Exchange Semester**, *Högskolan i Skövde*, Skövde, Sweden
- Oct 2019 – Sept 2020 **Electrical Engineering (Coursework completed)**, *Technical University Darmstadt*, Darmstadt, Germany  
Completed foundational coursework relevant to Computer Science before switching majors.

## Bachelor Thesis

- Title *Evaluating Cultural Diversity in Text-to-Image Models*
- Supervisors Cecilia Chen Liu, Msc. and Prof. Dr. Iryna Gurevych
- Description Developed a large-scale benchmark to assess cultural bias in state-of-the-art Text-to-Image models (e.g., Stable Diffusion XL, FLUX.1), using a multilingual dataset (5 languages) and 2.3M compositional prompts. Designed a novel evaluation pipeline with Visual Question Answering models (e.g., Qwen2-VL-7B-Instruct) to measure text-image alignment. Findings revealed 10% underperformance on non-Western cultures, exposing systemic cultural and multilingual gaps. Grade: 1.0 (A+).

## Experience

### Vocational

- Apr 2024 – Jul 2024 **Semantic Detection of Synthetic Images (Cousework)**, *TU Darmstadt*, Darmstadt
- Designed a semantic classification pipeline to distinguish between real and AI-generated images using captioning, vision-language embeddings, and large language models.
- Adapted an open-source vision-language framework to generate and rank class-level semantic hypotheses.
  - Used BLIP-2 for caption generation and CLIP for ranking; employed GPT-3.5 for inference.
  - Reached 77.8% classification accuracy without relying on low-level visual artifacts.

- Oct 2023 – **Incident Management Module - Train Management System**, *Institute for Railway Systems, TU Darmstadt*, Darmstadt  
 March 2024  
 Developed a simulation and GUI-based module in Python (Tkinter) for managing 25+ railway incident scenarios. The tool supported interactive configuration for training and planning. Applied agile methods and usability testing to ensure efficiency.
- Built a real-time simulation with incident visualization and an intuitive Tkinter GUI.
  - Implemented backend logic for scenario execution and system response handling.
  - Achieved 30% task efficiency gain through usability testing; used Scrum and Git for workflow.
- Nov 2023 – **Tutor, Department of Computer Science**, *Technical University Darmstadt*, Darmstadt, Germany  
 Feb 2024,  
 Nov 2022 – *Subjects: Foundations of Language Technology, Introduction to Compiler Construction, Visual Computing*  
 Feb 2023
- Clarified complex technical concepts to enhance student understanding
  - Led interactive seminars to boost engagement and participation
  - Collaborated with teaching staff to streamline course delivery and organization
- Oct 2021 – **Sentiment Classifier for Tweets using a Neural Network (Coursework)**, *TU Darmstadt*, Darmstadt  
 Feb 2022
- Developed a feedforward neural network to classify tweets into positive, negative, or neutral sentiments using fundamental NLP preprocessing techniques.
- Preprocessed multilingual tweet data with stopwords removal, lemmatization, stemming, and noise filtering.
  - Built and trained the model using TensorFlow, leveraging Bag-of-Words vectorization and NLTK tools.
  - Addressed significant class imbalance, highlighting opportunities for data augmentation and model improvement.
- Oct 2021 – **Mentor, IMS System, Department of Computer Science**, *Technical University Darmstadt*, Darmstadt, Germany  
 Mar 2022
- Mentored first-year students through active listening and guided dialogue to support their development.
  - Led weekly coaching sessions to promote self-reflection, goal-setting, and a growth mindset.
  - Monitored progress and tailored coaching to boost engagement and resilience.

## Computer skills

Languages:	<div><div></div><div></div><div></div><div></div><div></div></div>	Python	<i>Used extensively in coursework and Bachelor Thesis for data analysis and automation</i>
	<div><div></div><div></div><div></div><div></div><div></div></div>	Java & Bash	<i>Applied in coursework and scripting workflows on Linux systems</i>
Methods:	<div><div></div><div></div><div></div><div></div><div></div></div>	Git	<i>Regular use for version control and collaboration</i>
	<div><div></div><div></div><div></div><div></div><div></div></div>	Scrum	<i>Practiced in academic and team environments; familiar with agile workflows</i>
Frameworks & Libraries	<div><div></div><div></div><div></div><div></div><div></div></div>	Pandas & NumPy	<i>Performed advanced data manipulation and numerical computing in Python</i>
	<div><div></div><div></div><div></div><div></div><div></div></div>	Huggingface & Scikit-learn	<i>Implemented state-of-the-art NLP models and classical machine learning algorithms</i>
	<div><div></div><div></div><div></div><div></div><div></div></div>	PyTorch	<i>Designed and trained neural networks for image recognition and NLP</i>

## Languages

German Native

English	C1 – Advanced	<i>Used in academic and professional settings</i>
Chinese	B1/B2 – Intermediate	<i>Heritage speaker; completed formal courses during exchange</i>
French	A2 – Basic	<i>Completed coursework during school</i>
Swedish	A2 – Basic	<i>Took introductory classes during exchange semester</i>

## Scholarships

- Feb 2025 – **Recipient of the PROMOS Scholarship**  
June 2025
- Oct 2021 – **Recipient of the Deutschlandstipendium Scholarship**  
Sep 2023

## Interests

- Bouldering Recreational climber for 5 years
- Traveling Interested in learning about different cultures and languages
- Languages Actively learning and practicing new languages