

# Hao Zhang

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## EDUCATION

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2015.9~2019.6	Guangzhou University	<b>Bachelor of Computer Science</b>
2020.4~2024.5	TU Darmstadt	<b>Master of Computer Science(Informatik)</b>
GPA	1.5	

## WORKING EXPERIENCE

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2023.11~2024.5	<b>Internship at Allianz Global Investor</b>	Frankfurt am Main
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- **Developed software** for automating the **bonds data-uploading** procedure.
- Implemented frontend UI via **python Streamlit library** and **SQL** to simplify the operation of **SQL server**.
- Deploy the micro service via **Kubernetes** in **Azure Cloud** Maintain access.
- **Quantitative Research** on **bonds yield** and **credits**.

2022.4~2023.4	<b>Student Researcher at UKP Lab</b>	Darmstadt
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- Developed **Full-stack** project UKP-SQuARE ([square.ukp-lab.de](https://square.ukp-lab.de)) with **FastAPI** as backend framework and **Vue.Js** as frontend framework.
- **Researched, replicated and modified** the state of art **LLM, transformer model**.
- **Developed and deployed LLM** on Question-Answering task in online platform via **docker-compose**.
- **Organized regular academic conferences** and **created posters** to display research findings.

2022.4~2023.10	<b>Student Researcher at PTW Lab</b>	Darmstadt
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- Implemented **machine learning project** using **tree model** to classify quality of product from lathe.
- **Fin-tuned machine learning model** and achieved 0.92 F1-score on the unseen data.
- Independently developed a **Full-stack project on embedded devices**, utilizing **Flask API** and **Vue.js**.
- Implemented the **monitoring of temperature, humidity**, and other information using **embedded devices**, and saved the data into a **SQL database**.

2021.5~2021.7

**Student Assistant at SEEMOO Lab**

Darmstadt

- Maintained Nextcloud and backup server using **Linux** and **bash scripts**, addressed bugs of **Nginx**.
- **Documented** the configuration of service by using the **GitLab**, **GitHub** and **Git**.

## PROJECTS

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2023.05~2023.10

**Master Thesis:** Grounding Text Generation with Knowledge Graphs

- Fine-tuned T5 model on CSQA dataset as baseline, got 0.70 accuracy.
- Grounded generative model T5 on knowledge graph ConceptNet
- Pretrained graph based T5 model on Bookcorpus data.
- Fine-tuned graph based T5 model and got improvement 6.4% and 5.3% on dev and test set

2022.04~2022.07

**The application of Machine Learning in Prevention of Heart Disease**

### Health

- Implemented a parallelized (1d-CNN+LSTM) model, achieved 0.94 F1-score on unseen data.
- Used a Random over sampling to address unbalance data set.

2021.09~2022.01

**Machine Learning Project: Skin-lesion Detection**

- Implemented an **ensemble Model** with 5 CNN based model as weak classifiers.
- Used majority voting got the accuracy higher than 89%.
- Used Gradio to implement a WebUI for Skin-lesion Detection task.

## PUBLISHED PAPER

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- UKP-SQuARE v2: Explainability and Adversarial Attacks for Trustworthy QA
- UKP-SQuARE v3: A Platform for Multi-Agent QA Research

## TECHNICAL SKILLS

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Proficient in : Python (Proficient), Vue.JS(Familiar) C/C++(Familiar)

Machine Learning: SVM,RF,GBDT,AdaBoost,NB,K-Means

Deep Learning : CNN, LSTM, Transformer, BERT, Roberta, T5, GNN, GCN, GraphSAGE, GraphAttention Networks

Web Development: HTML, JavaScript, CSS3, XML, Wordpress,VueJs, Django, FastAPI

Database: SQL, Mysql, MongoDB

Data Science: Pytorch, Scikit-learn ,Numpy, Pandas, Spacy, gensim

DevOps: Linux ,Nginx, Bash, Docker, Vim, Git ,Latex, Vmware, Azure, Kubernetes, Dremio, Datadog, Confluence

## LANGUAGE SKILLS

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German : B2~C1

English : B2~C1