



# Runyao Yu

TECHNICAL UNIVERSITY OF  
MUNICH

## Details

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DATE OF BIRTH  
23. July 1995

## Links

[Working Certificate](#)  
[Writing Example](#)  
[GitHub](#)  
[LinkedIn](#)  
[Teaching](#)  
[Coursera](#)

## Skills

Deep Learning  
Statistical Machine Learning  
Big Data Analysis  
Advanced Data Visualization  
  
Python | PyTorch | TensorFlow  
Matlab | C | Git | MongoDB | LaTeX  
VS Code | PyCharm | Spyder  
Google Colab | Jupyter Notebook  
Microsoft Office | Slack | Team  
SIMetrix | PS | Dialux | AutoCAD

## Languages

Chinese | English C1 | German C1

## Hobbies

Guitar | Photograph | Swimming

## Education

### Master of Science, TU Munich

OCTOBER 2020 – OCTOBER 2022

Electrical and Computer Engineering, Machine Learning

### Bachelor, TU Kaiserslautern

MARCH 2017 – SEPTEMBER 2020

Electrical and Computer Engineering, Automation Technology

### Bachelor, Fuzhou University

SEPTEMBER 2014 – SEPTEMBER 2018

Electrical and Computer Engineering, Control Engineering

Cooperation Program between TU Kaiserslautern and Fuzhou University

## Core Courses

Deep Learning | Applied Machine Learning | Data-Driven Innovation  
Machine Learning and Optimization | Seminar Machine Intelligence

## Internships

### AI Thesis Intern, BMW, Munich

MARCH 2022 – OCTOBER 2022

Analysis and Optimization of EV-Batteries using Artificial Intelligence

- EV-Battery Anomaly Detection using VAE-LSTM and Bisecting K-Means
- Discrete Features Generation using GAN
- EV-Battery Status Classification utilizing XGBoost, MLP, CWT and CNNs
- Time-Series Temperature Prediction applying BiLSTM with Attention

### AI Semester Intern, BMW x TUM-DI-LAB, Munich

MARCH 2022 – JULY 2022

Prediction and Clustering for Critical Suppliers using Artificial Intelligence

- Comparison and Identification of Features for Suppliers
- Time-Series Value Prediction based on Given Features
- Classification of Suppliers
- Evaluation of Explain-ability of Given Models

### AI Consulting Intern, KPMG, Munich

JANUARY 2022 – FEBRUARY 2022

Big Data Consulting for Tax and Document Retrieval using Artificial Intelligence

- Tax Data Preprocessing and Cleaning
- Implementation of 2D-BERT for Document Retrieval
- Account and Customer Classification applying Random Forest and RNNs
- Product Delivery to Customer and Consulting Service

### AI Research Assistant, ETH Zurich, Zurich

AUGUST 2021 – JANUARY 2022

User Behavior Analysis applying Artificial Intelligence

- Data Labeling and Validation using TF-IDF and N-Gram
- Zhihu Comment Augmentation using Back-Translation
- Zhihu Comment Classification applying LSTM and BERT
- User Profile Classification applying ResNet, EfficientNet, and RegNet
- Algorithm Development for User's Behavior Analysis

## **Data Science Working Student, Danfoss Silicon Power, Ismaning**

JUNE 2021 – JANUARY 2022

### **Data-Driven Innovation for Chip Modules**

- Feature Extraction for IGBT and SiC Chip Modules
- High-Dimensional Data Visualization using VAE and T-SNE
- Chip Module Anomaly Detection utilizing DBSCAN and Isolation Forest
- Chip Module Quality Classification applying SVM and Random Forest
- Software Development for Monte-Carlo Test based on SIMetrix

## **Data Science Working Student, TU Munich, Munich**

APRIL 2021 – AUGUST 2021

### **Data-Driven Innovation for Lithium-Ion Batteries**

- Database Establishment in MongoDB
- Features Extraction for Lithium-Ion Batteries
- Latent Pattern Mining applying PCA and K-Means
- Battery State Classification using Logistic Regression and Random Forest

## **Technology Consulting Intern, Arup, Frankfurt am Main**

NOVEMBER 2019 – MARCH 2020

### **Technology Consulting for Data Center**

- Design and Optimization of Electrical Networks
- Power Simulation of Lighting Systems
- 3D-Modeling of Buildings
- Consulting Service for Internal Colleagues and External Customers

## **Academic Projects**

### **Computer Vision, TUM, Chair for HCR**

JANUARY 2022 – FEBRUARY 2022

- Car Image Collection and Labeling in RoboFlow
- Car Image Preprocessing
- Car Tracking using R-CNN and YOLOv5

### **Natural Language Processing, TUM, Chair for HCR**

NOVEMBER 2021 – DECEMBER 2021

- Twitter Texts Cleaning and Cutting
- Twitter Texts Embedding using TF-IDF
- Twitter Users Classification using LSTM and GRU

### **Computer Vision, TUM, Chair for HCR**

NOVEMBER 2021 – DECEMBER 2022

- Pokémon Image Preprocessing
- Pokémon Image Augmentation applying Rotation, Mirroring, and Blurring
- Pokémon Classification using ResNet, EfficientNet, and Vision Transformer

### **Statistical Machine Learning, TUM, Chair for Data Processing**

JUNE 2021 – AUGUST 2021

- Ancillary Feature Generation for Electricity Price utilizing Tsfresh
- Feature Filtering utilizing Lasso Regression
- Time-Series Electricity Price Prediction using ARIMAX and Transformer

### **Computer Vision, TUM, Chair for Data Processing**

APRIL 2021 – JUNE 2021

- Satellite Image Features Extraction using SIFT and SURF
- Image Transformation
- Satellite Image Change Detection using PCA and K-Means

## Extra-curricular activities

### Campus Ambassador, Smoore

DECEMBER 2021 – FEBRUARY 2022

Social Network Building and Recommendation of Suitable Candidates

### Member, TUM.ai

OCTOBER 2021 – DECEMBER 2021

Activities in Multiple AI Events

### Photographer, Soul and Weibo

SEPTEMBER 2019 – MAY 2020

Accumulation of 9,000+ Fans via Portrait Photograph

### Deputy Leader, Student Union Art Group of Fuzhou University

SEPTEMBER 2015 – SEPTEMBER 2016

Management of 20+ People and Organization of 2 Shows

### Guitarist, Kiss The Sun Band

SEPTEMBER 2014 – SEPTEMBER 2016

Performance of Folk Music in 2 Large-Scale Evenings

## Awards

### Excellent Exchange Student, TUK & Fuzhou University

JUNE 2020 – JUNE 2020

Scholarship of 2,000+ Euros

### Outstanding Performance Award for Band Show, Fuzhou University

NOVEMBER 2016 – NOVEMBER 2016

Prize Winning for Band Show "River Flows in You" and "Nan Shan Nan"

### Best Student in High School Graduation Year, Fengdu Middle School

JUNE 2014 – JUNE 2014

Highest Grade from Fengdu Middle School Students in Year 2014

## References

### Prof. Klaus Diepold from TU Munich

Research Supervisor | kldi@tum.de

### Dr. Yanfeng Shen from Danfoss & University of Cambridge

Research Mentor | yanfeng.shen@danfoss.com

### Dr. Ye Wang from ETH Zurich

Research Mentor | wangye@ethz.ch

### Prof. Stefan Goetz from TU Kaiserslautern & University of Cambridge

Thesis Supervisor | goetz@eit.uni-kl.de

### Prof. Jingyang Fang from TU Kaiserslautern & University of Shandong

Thesis Supervisor | jingyangfang@sdu.edu.cn

### Prof. Andreas Jossen from TU Munich

Thesis Supervisor | andreas.jossen@tum.de

### M.Sc Andreas Billert from BMW & KIT

Thesis Mentor | Andreas.Billert@bmw.de