Zewen Yang

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Education

Technical University of Munich 2019 - 2022
Harbin Engineering University 2017 - 2019
Ph.D. (Joint-Training) - Computer Science, Information & Technology

- Machine Learning: Bayesian Learning, Deep Learning, Safe Learning, Fusion Learning
- Control Theory: Linear & Nonlinear Control, Underactuated Control, Model Predict Control (MPC)
- Distributed Systems: Cooperative Learning, Coordination Control, Communication Effect Analysis

Northeast Forestry University 2015 - 2017
M.Sc. - Mechanical and Electrical Engineering

Harbin University of Science and Technology 2010 - 2014
B.Sc. - Electrical Engineering and Automation

Experience

Data Scientist Retreat Berlin, Germany
Data Scientist Jan 2023 - April 2023

- Statistical Learning
  - Built and deployed a ML App with data pre-processing and feature engineering
  - Predicted disease spread via time series models and evaluated different models via MLflow
- Deep Learning
  - Real-time object detection, action detection and gesture analysis for sign language recognition
  - Trained image classification models using the state-of-the-art vision transformer
- Natural Language Processing
  - Extracted and visualized character relationship with named entity recognition for book series
  - Fine-turned language models for segmentation and text generation tasks
  - Found similar researchers using node and word embeddings for collaboration recommendations

Technical University of Munich - Chair of Information-oriented Control Munich, Germany
Doctoral Researcher Sep 2019 - Nov 2022

- Total publications: 48, patents: 12, citations: 250+, h-index: 9 (Google Scholar)
- Supervised 10+ student theses with several projects being graded with the highest score
- Teaching Curriculum: Advanced Control and Robotics
- **European Union's Horizon 2020 - SeaClear**
  Search, Identification and Collection of Marine Litter with Autonomous Robots 1.0 (5 Million €), 2.0 (9 Million €)
  - Developed a data-driven model for Autonomous Underwater Vehicles (AUVs) with safe quantification
  - Created a simulation platform for control testing of AUVs
  - Contributed hardware tests, e.g., grabbing bottles in various currents, in Marseilles and Hamburg port
- **European Union's Horizon 2020 - REHYB**
  Rehabilitation Based on Hybrid Neuroprosthesis (7 Million €)
  - Detected the abnormal movements for people with disability through DNN using multiple sensors, e.g., EMG
  - Studied the safe control of human muscles by FES to achieve functional movements
- **DFG & NSFC - COVEMAS**
  Control and Optimization for Event-triggered Networked Autonomous Multi-Agent Systems
  - Designed novel cooperative learning algorithms for centralized and distributed systems
  - Delivered the learning-based control protocols for the coordination of multiple interacting agents
  - Developed mode-free distributed MPC and shared distributed MPC control laws

Harbin Engineering University - College of Intelligent Systems Science and Engineering Harbin, China
Principal Investigator May 2019 - Jun 2022

- **Ph.D. Student Research & Innovation Fund of Fundamental Research Funds for Central Universities**
  Research on the Coordinated Control Method of AUV Swarm (70k ¥)
  - Teamed up a research team and successfully completed the project with top-tier publications
  - Proposed novel formation control methods for AUV swarm using the consensus algorithm

Harbin Engineering University - Institute of Marine Equipment & Control Technology — Harbin, China
Doctoral Researcher — Sep 2017 - Aug 2019

- **National Natural Science Foundation of China & National Key Innovation Project**
  Environmental Prediction & Task Reconfiguration of AUV for Covert Operations in the Coastal Sea (600k ¥)
  Overall Technology Scheme of the Multiple AUVs System (50 Million ¥)
  - Developed advanced control algorithms for AUVs
  - Investigated obstacle avoidance and recovery docking approaches for AUVs
  - Wrote a chapter 'Reliability Analysis & Design Technology of AUV' in the book "Control Technology of AUV"

Education Bureau of Hulan District — Hulan, China
Teaching Assistant — Mar 2017 - Jun 2017

- Examined and modified the physics lesson plans of high school, taught the physics course

Suzhou Electrical Apparatus Science Academy Co., Ltd. — Suzhou, China
Test & Analysis Engineer — Oct 2016 - Feb 2017

- Implemented and analyzed testing experiments for different characteristics of fiber optical current transformers

Harbin Turbine Co., Ltd. — Harbin, China
Automation Engineer — Mar 2014 - Jun 2014

- CNC lathe programming, quality inspection

Activities

Automatica — Munich (Germany), June 27–30, 2022

- Exhibited the **SeaClear** project

The 40th Chinese Control Conference — Shanghai (China), Jul 26-28 2021

- Co-Chair of the Section "Multi-Agent Systems and Distributed Control"

The 15th 'Challenge Cup' of University Students Extracurricular Academic Science and Technology Competition — Sep 2016 - July 2017

- Won the third prize of Heilongjiang Province, converted the results to 7 patents and 8 publications
- Contributed to the project 'Multi-layer Micro-automatic plant factory', designed and built the plant factory

Achievements

Outstanding Doctoral Graduate — Jun 2022
Selected by Harbin Engineering University

National Scholarship for Doctoral Student — Dec 2019
Issued by Ministry of Education of the People's Republic of China

Province Merit Student — May 2019
Selected by Ministry of Education of Heilongjiang Province

Ministry of Industry and Information Technology Innovation and Entrepreneurship Scholarship — Feb 2019
Issued by Ministry of Industry and Information Technology

China State Shipbuilding Scholarship — Nov 2018
Issued by China State Shipbuilding Corporation Limited

Merit Student (four times) 2017 - 2021
Selected by Harbin Engineering University

Doctoral Scholarship (four years) 2017 - 2021
Issued by Harbin Engineering University

Outstanding Master Graduate Jun 2017
Selected by Northeast Forestry University

Outstanding Graduate Thesis Sep 2017
Selected by Northeast Forestry University

Excellent League Member (two times) 2015 - 2017
Selected by Northeast Forestry University

Master Scholarship (two years) 2015 - 2017
Issued by Northeast Forestry University

Bachelor Scholarship (four semesters) 2010 - 2014
Issued by Harbin University of Science and Technology

Skills Summary

- **Programming & Markup Languages**
  - Python, Matlab & Simulink, C/C++, HTML/CSS, JavaScript, SQL, Latex, Markdown
- **Frameworks & Libraies**
  - PyTorch, TensorFlow, Keras, scikit-learn, statsmodels, PySpark, ROS
  - OpenCV, Gazebo, D3.js, Flask, FastAPI, Selenium, Beautiful Soup, matplotlib, seaborn, Plotly
  - Numpy, Pandas, spaCy, NLTK, Gensim, tokenizers, transformers, openai, fastai
- **Softwares & Tools**
  - Git, Jupyter, Docker, AWS, Azure, Databricks, MySQL, Postman, Streamlit, Render, Heroku, Qualisys, OpenSim
- **Language**
  - English, German, Chinese

Reference

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