Personal Information

Name	Renzhi Wu
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Education

09.2016-02.2020	Tsinghua University, School of Mechanical Engineering Power Engineering and Engineering thermophysics Degree: Master of Engineering (research track)
09.2012-07.2016	Tsinghua University, School of Mechanical Engineering Field of Study: Energy, Power System and Automation Degree: Bachelor of Engineering

Manuscripts

AutoER: Automated Entity Resolution using Generative Modelling
Renzhi Wu, Sanya Chaba, Saurabh Sawlani, Xu Chu, Saravanan Thirumuruganathan
We proposed an unsupervised entity resolution method that achieves comparable performance to supervised methods.

Real-Time Pattern Matching with Dynamic Normalization
Renzhi Wu, Sergey Sukhanov and Christian Debes.
We introduced a window-free dynamic z-normalization mechanism to achieve proper normalization for noisy time series data that suffers from possible time and amplitude distortions. Based on that, we proposed a pattern matching approach and proved its higher computational efficiency and higher accuracy than the state-of-the-art methods on real-world datasets.

Dynamic Pattern Matching with Multiple Queries on Large Scale Data Streams (Signal Processing, Special Issue on Statistical Signal Processing Solutions and Advances for Data Science, under review)
Sergey Sukhanov[*], **Renzhi Wu**[*], Christian Debes and Abdelhak M. Zoubir. ([*]equal contribution)
We proposed a probabilistic model ensembling multiple query sequences allowing fast and accurate time series pattern retrieval in large time series data stream.

A cross-scale simulation algorithm for dropwise condensation (Numerical Heat Transfer, under review)
Renzhi Wu, Zhifeng Hu and Xiaomin Wu.
We proposed an event-driven cross-scale simulation algorithm for dropwise condensation achieving significantly higher computational efficiency than the state-of-the-art methods.

Research & project experiences

3.2018-present	Research assistant at Institute of Engineering Thermophysics (Tsinghua, Beijing). Development of high efficient simulation algorithms for cross-scale dropwise condensation on superhydrophobic surfaces.
7.2019 - 8.2019	Visitor at Prof. Xu Chu's lab (Georgia institute of technology, Atlanta, USA) Worked on unsupervised entity resolution and automatic training data generation.
9.2017- 2.2018	Full-time data scientist intern at AGT R&D (Darmstadt, Germany) 1. Proposed a novel data normalization mechanism along with a pattern matching approach for noisy time series data. 2. Contributed to the active learning framework of AGT.
10.2017	Member of the 1st-place team at campus hackathon Darmstadt. We built a news analyzer (Lightning-Reads) which extracts important information from long news articles and present an intuitive and concise summary to help readers understand faster.
1.2017- 6.2017	Student Research Assistant at Cybernetics Lab IMA / ZLW & IfU (RWTH Aachen, Germany). 1. Investigated different behavior of different reinforcement learning algorithms. Some details of my early phase work can be found here. 2. Proposed a 3D trajectory-based time series representation and comparison method for classification and clustering of actions from accelerometer and gyroscope sensors.
2.2017-	Competitions Expert at Kaggle. Top 8% in Sberbank Russian Housing Market.

	Top 3% in Porto Seguro's Safe Driver Prediction.
	Top 2% in House Prices: Advanced Regression Techniques.
	Top 1% in Titanic: Machine Learning from Disaster.
4.2017-5.2017	A toy project. Built a primitive model to predict the likelihood of death of characters in *Game of Thrones*. More details can be found here.
1.2016-6.2016	Game designer at Yulu Education. Designed a prototype of a Minecraft mod for kids to learn programming.
2015-2016	Studied 2-D shape classification using FT-based descriptors. We extended the classical Fourier descriptors, which only works in the simply connected 2-D domain, to multiply connected 2-D domain.

Courses

Math	Linear algebra; Calculus; Complex analysis; Numerical analysis
Statistics	Probability and statistics; Introduction to bayesian statistics;
Computer Science	Algorithm and data structure; C++ programing language; Advanced software engineering;
etc	Data processing in thermal engineering; Introduction to optimization methods in energy systems;

Skills

Proficient in Python, familiar with Java, C++ and linux.

Languages

Chinese	Native
English	Proficient (TOEFL 110)
German	Basic (B1)