Ke Zhou | Curriculum Vitae

Straße des 17. Juni 135, 10623 Berlin, Germany

ke.zhou.joe@gmail.com linkedin.com/in/ke-zhou-a33837199

Education

Joint Master Degree in Autonomous Systems by TU Berlin & ELTE
Master Thesis (excellent 5.0/5.0): *High-quality semantic 3D reconstruction of building interiors*

Sept.2021 – Dec.2022	**Eötvös Loránd University (ELTE)**	excellent(4.93/5.0)	Budapest, Hungary
Aug.2021 – Aug.2021	**Summer School in Aalto University**	good(1.7/1.0)	Espoo, Finland
Oct.2019 – Oct.2020	**Technische Universität Berlin (TU Berlin)**	good(2.2/1.0)	Berlin, Germany
Sept.2010 – Jun.2014	**Chongqing Technology and Business University**		

Bachelor Thesis (excellent 95.0/100.0): *Financial Time Series forecasting with Empirical Mode Decomposition and Back Propagation neural network*
Bachelor Degree in Automation excellent(89.75/100.0) Chongqing, China

Research Experiences

Feb.2022 - Dec.2022

Intern & Master Thesis on *High-quality semantic 3D reconstruction of building interiors*
NOKIA Bell Labs & Eötvös Loránd University excellent(5.0/5.0) Budapest, Hungary
Industry supervisor: Gábor Sörös Academic supervisor: Hajder Levente

- To improve robot spatial understanding, my work fit into the **semantics level** of *Spatial AI*, proposed to replicate human excellent environment understanding capability.
- I dedicated to build High-quality Semantic 3D reconstruction of building interiors for assistant robots and virtual reality glasses etc, also with Multi-agents Collaboration for large-scale applications and Scene Graph Generation for more sophisticated tasks.
- I did a brief walk-through essential components in Spatial AI, then a comprehensive literature review and comparison regarding two very promising but completely different approaches; Exported synthetic RGB-D from AI Habitat, also published it by topics via ROS; Implemented customized dataset loader; Implemented an active-inactive map feature to optimize computational complexity; Extended to multi-agents collaboration for both centralized and distributed system architectures; Implemented a semantic segmentation evaluation tool to gain deep performance insights and reveal reasons of wrong semantic segmentation; Proposed a node-splitting feature to improve semantic segmentation performance; Conducted an In-depth qualitative and quantitative evaluation with both synthetic and realistic data to thoroughly understand the system.
- Computation decreased from linear to independent w.r.t the GSM size, and virtual memory usage decreased from quadratic to linear w.r.t the GSM size; Semantic segmentation performance improved around 10-30% depending on the classes; Findings need further investigations: loop closure detection, the determination of Surfel size and dynamic scenario.

Feb.2012 - Jun.2014

Research Assistant & Bachelor Thesis on non-linear and non-stationary time series forecast
Chongqing Technology and Business University excellent(95.0/100.0) Chongqing, China
Research Assistant Supervisor: Heping Pan Bachelor Thesis Supervisor: Zhiqiang Chen

Decompose financial time series via the Empirical Mode Decomposition, into a series of Intrinsic Mode Function in which features are better represented; Visualized them in the Hilbert-Huang Spectrum, and revealed the frequency & period of each IMF; Built up a multi-layer feed-forward network forecasting model, and trained with Backward Propagation algorithm; Extended to Multivariate Empirical Mode Decomposition; Designed & developed graphical user interface for the system.

Industry and Training Experiences

Aug.2017 - Sep.2018	**Computer Vision Algorithm Engineer** Remark Holdings I mostly committed to Facial Landmark Detection, while also participated in News Video Content Classification and Bus Station Billboard Matching and Recognition etc.	Chengdu, China
Oct.2016 - May.2017	**C++ (online self-study)** Jiangsu Chuanzhiboke	Beijing, China
	Self-driving Car Engineer (online self-study) Udacity.Inc	California, United States
Jul.2015 - Sep.2016	**Natural Language Processing Engineer** CYYUN I mainly focused on applying machine learning techniques in Natural Language, such as Chinese Word Splitter Algorithm, Sentimental Analysis, News Topic Classifier, Event key change detection. And, I was also a development member of Event system.	Shanghai, China
Jan.2015 - Jun.2015	**Embedded Systems Bootcamp** Uplooking Technology	Shanghai, China

Awards and Distinctions

Jun. 2023	**ELTE Outstanding Master Thesis Award** Awarded to 3% students excellent 5.0/5.0 Eötvös Loránd University (ELTE)
Mar. 2019	**EIT Digital Excellence Scholarship & EIT Digital School master Offer** European Institute of Innovation and Technology (EIT)
Feb. 2018	**Most Promising Employee of the Year Award** Remark Holdings
Jan. 2015	Chengzhao Zhang, Heiping Pan, **Ke Zhou** (Core Developer), Comparison of Back Propagation Neural Networks and EMD-Based Neural Networks in Forecasting the Three Major Asian Stock Markets. Journal of Applied Sciences DOI: 10.3923/jas.2015.90.99
Jun. 2014	**Best Undergraduate Thesis Award** Awarded to 3% students 95.0/100.0 the highest score Chongqing Technology and Business University
Feb. 2014	**Meritorious Winner** for The Interdisciplinary Contest in Modeling (ICM) Team Leader The Consortium for Mathematics and Its Applications (COMAP) PROBLEM C: Using Networks to Measure Influence and Impact 1028 Teams participated: 6 Outstanding Winners (1%), 5 Finalist Winners (1%), **131 Meritorious Winners (13%)**, 367 Honorable Mentions (35%), 519 Successful Participants (50%)
Feb. 2012	**Core research team member** in project "Predication of the stock market" (Project No. 670100467), Granted by Zhejiang Blue Source Investment Management, Fund: ¥500,000 **Software develop member** in "Artificial investment and strategies" (Project No.17BGL231), Granted by The National Social Science Fund of China, Fund: ¥: 200,000

Skills

Languages	Strong reading, writing and speaking competencies for English, Mandarin Chinese
Coding	Python, C++, MATLAB, Java, C, LaTeX, Markdown, …
Frameworks	ROS, PyTorch, Tensorflow
Libraries	Eigen, OpenCV, Numpy, Matplotlib, Scikit-learn, Scipy, Pandas, Seaborn
Coding Tools	vim, tmux, Git, Clion, PyCharm, Jupyter Notebook