Ke GUO

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Education

Master Degree Candidate — ***Ecole Centrale de Nantes, France***
Advanced Robotics — 09/2020 - 09/2023(expected)
GPA:3.54/4
Main courses: Autonomous Vehicle; Artificial Intelligence; Computer Vision; Advanced Visual Geometry; Task-based Control; Advanced Modeling of Robots

Exchange Program — ***Ecole Centrale de Nantes, France***
Signal, Control and Robotics — 10/2020 - 05/2021
GPA:16.9/20
Main courses: Control Systems; Embedded Systems; Basics of Signal Processing and Image Methodology

Bachelor Degree — ***Harbin Institute of Technology at Weihai, China***
Mathematics(in Information and Computing Science track) — 09/2017 - 06/2021
GPA:82.37/100; **Rank**:12/59
Main courses: Mathematical Analysis; Higher Algebra; Probability and Statistics; Numerical Analysis; Foundations of Big Data Analysis; Mathematical Theory of Complex Systems; Ordinary Differential Equation; Numerical Methods for Partial Differential Equations; Operational Research

Work Experience

Research Engineer Intern — 02/2023 - now
Visual Behavior, Lyon, France

- Responsible for the deep learning application in SLAM; replace the traditional PnP algorithm with Transformer; study the autonomous positioning algorithm based on BEV.
- Supervised by Thibault Neveu

Research Assistant — 04/2022 - 06/2022
Laboratoire des Sciences du Numérique de Nantes (LS2N), Nantes, France

- Finished a project about Visual SLAM based on PX4 Vision UAV with Python on ROS2 platform by using the Google Cartographer package.
- Wrote the driver code for the RGB-D depth camera and the tf transformation for each part of the drone; obtained the final 3D point cloud map of the laboratory by using the built-in IMU of the drone and the external motion capture device and the RGB-D camera of the drone.
- Supervised by Professor Olivier Kermorgant

Research Assistant — 02/2019 - 06/2021
Data Science Lab, Harbin Institute of Technology at Weihai, Weihai, China

- Systematic learned of machine learning algorithms, collaborated with computer and automation groups on projects related to the identification of land by drone photography and medical image recognition Items detecting tumors.
- Read machine learning literature and reproduce code in Python and R.
- Worked on optimizing the pooling layer of the CNN to better fit the project of identifying land. Improved the accuracy of land recognition to over 85%.
- Supervised by Professor Huan Su

Junior Java Developer Intern 12/2019 - 01/2020
Jinxiandai Company, Jinan, China

- Trained in Java skills at the company, implemented an offline news website using MySQL and Java.
- Mainly responsible for some of the front-end web code and all the database and front-end interaction based on Servlet, finally completing the general user login, query browsing, and the back-end administrator for news addition, deletion, checking, and changing.

Assistant Engineer Intern 07/2018 - 09/2018
Product Center of Shanxi Diesel Engine Industry Co., Ltd, Datong, China

- Used Python to process and analyzed sales data stored in Excel files; used the AutoRegressive Integrated Moving Average model to forecast the number of orders for the next quarter; rationalized production planning, and successfully completed production tasks.

Honors and Awards

Second prize, National College Students Mathematical Contest in Modeling, China 08/2018

Second prize, National College Student Mathematics Competition, China 12/2019

Academic Progress Scholarship in HIT, China 12/2019

People's Scholarship(Top 15%) in HIT, China 06/2020

Red Lion Science Scholarship(full funding to DPhil) provided by Data Science Lab in Hanyang University(voluntarily gave up), South Korea 01/2021

Erasmus Scholarship from QEM programme(voluntarily gave up), Europe 04/2021

Centrale Nantes Elite Scholarship (6000€), France 06/2021

Technical Skills

Programming Languages/Tools	Python, Matlab, C++, Numpy, TensorFlow, Pytorch, Sklearn, cv2, Open3d, Scipy, g2opy, Pclpy
Development Tools	Linux, ROS, Docker, Shell, Git, VScode, WandB, Vim

Language Skills

Chinese	Native
English	Full professional proficiency
French	Limited working proficiency

Research Interest

SLAM, Visual Odometry, Human-robot Interaction, Computer Vision, AGI in Robotics, RL in robotics