

Runyi Yang (杨润一)

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EDUCATION

Beijing Institute of Technology (BIT), Beijing, China

Sep 2019-Jul 2023

BSc in Automation (Exp. Jul 2023), GPA: 3.8/4.0, Score: 90.1/100

Awards: Outstanding Student Award, CASC Scholarship, Academic Excellence Scholarship \times 6

Relevant Coursework: Mathematical Analysis(96), Linear Algebra(92), Probability and Statistics(93), Data Structure and Algorithm(93), C++ Programming(100), Intelligent Computing Systems(90), Reinforcement learning(95)

PUBLICATIONS

Runyi Yang, Zirui Wu, Yongliang Shi, Hao Zhao[†], Guyue Zhou, Yurong Chen, Hongbin Zha. PMB: Compositional Attribute-object Understanding with Pronouns. (*In submission, under double-blind peer review*)

Zirui Wu, Yuantao Chen, **Runyi Yang**, Zhenxin Zhu, Chao Hou, Yongliang Shi[†], Hao Zhao, Guyue Zhou. AsyncNeRF: Learning Large-scale Radiance Fields from Asynchronous RGB-D Sequences with Time-Pose Function. (*In submission*, arxiv: 2211.07459)

Shi Yongliang*, **Yang Runyi***, Li Pengfei, Wu Zirui, Feng Yixiao, Zhao Hao, Zhou Guyue[†]. City-scale Incremental Neural Mapping with Three-layer Sampling and Panoptic Representation. IEEE Robotics and Automation Letter. (*In submission*, arxiv: 2209.14072)

Jiang Bowen, Muhammad Talha Hussain, Jiang Jianxun, **Yang Runyi**, Zeng Xiangyuan[†]. Attitude Control Experiments of Cubic Rover on Low-Gravity Testbed. Transactions of Nanjing University of Aeronautics and Astronautics.

*Equal contribution, [†]Corresponding author

RESEARCH EXPERIENCE

The Department of Computing, Imperial College London

London, United Kingdom

Research Intern, Advised by Prof. Tolga Birdal.

March 2022-Present

◦ Quantifying Camera Relocalization Uncertainty via Conformal Prediction

- Using Conformal Prediction to manage test-time adaptation for camera relocalization

DISCOVER Lab, Institute for AI Industry Research, Tsinghua University

Beijing, China

Research Intern, Advised by Prof. Zhou Guyue and Prof. Zhao Hao.

April 2022-Present

◦ Compositional Attribute-object Understanding with Pronouns

- Introduce pronouns framework and reformulated the training framework;
- Propose a FIFO memory mechanism, helps the model to better scale to larger backbones, and managed SOTA performance on three datasets.

◦ Multi-scene Camera Re-localization

- Apply manifold gradient to optimize the regression of camera re-localization in multi-scene;
- Design reprojection loss function and optimal method for camera re-localization task;

◦ City-scale Incremental Neural Mapping

- Construct a neural network frame to represent a road map implicitly;

- Analyze and improve existing Signed Distance Function representation methods and sampling strategy, managed SOTA performance on semanticKITTI dataset.

Dynamics and Advanced Control Laboratory, Beijing Institute of Technology **Beijing, China**
Research Intern (Robotics Group), Advised by Prof. Zeng Xiangyuan *Jun 2021- May 2022*

- **Design and Construction of Ground Microgravity Platform**
 - Establish a mathematical model of the microgravity platform, perform dynamic analysis of the microgravity system, and perform dynamic model analysis of the jumping, rolling, attitude adjustments and other actions of Cubic Robot.
- **Improve Controller of the Cubic Robot (Cubli)**
 - Design sensing system to collect real-time data of Cubic Robot in collaboration with the microgravity platform experiment;

School of Automation, Beijing Institute of Technology **Beijing, China**
Research Intern (Machine Learning Group), Advised by Prof. You Yuyang. *Nov 2019-Sep 2021*

- **A Non-destructive BCI Rehabilitation System and EEG Signal Processing**
 - Preprocess of EEG signal data, use motor imagery to assist feature extraction and classification of EEG signals corresponding to different actions;
 - Monitor sleep using BCI, collect sleep EEG signals, preprocess data and feature extraction.

HONORS & PRIZES

- Honorable Mention, Mathematical Contest In Modeling, Comap May 2022
- Third Prize, 13th National Mathematical Competition for College Students Dec 2021
- Third Prize, 12th International Humanoid Robot Olympiad Oct 2021
- First Prize, BIT Balance Car Competition Jun 2021
- Second Prize, Electronic Design Competition Apr 2021
- Second Prize in Beijing, National Mathematical Contest in Modelling for College Students Oct 2020
- Second Prize, College Students' Physics Academic Competition of Beijing Aug 2020

STUDENT ORGANIZATIONS

- *Founder, President*, BIT Swimming Club Dec 2019-Jun 2022
- *Captain*, BIT Swimming Team Mar 2021-Jun 2022
- *Organizer*, First Swimming Match of BIT vs. Beihang University June 2021
- *Organizer*, Second Swimming Games of BIT Nov 2020
- *Class President* Sep 2020-Present

SKILLS and LANGUAGE

Programming: C & C++, Python, MATLAB, Web(PHP+JavaScript+html5), Kubeflow
 Software: Proteus, Multisim, Simulink(MATLAB), AutoCAD, Altium Designer, MeshLab
 IELTS: 7.0 (Listening 7.5, Reading 8.0, Writing 7.0, Speaking 6.0), CET-6: 557/710

Extracurricular Activities

I am passionate about traveling, hiking and sports, especially swimming, basketball and skiing.