PERSONAL INFORMATION

Name: Xueyang Kang
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TERTIARY EDUCATION HISTORY

02/2018, Master of Science, Electro & Info Engineering, Technical University of Munich, Munich
03/2018, Master of Engineering, Electro & Info Engineering, Tongji University, Shanghai
09/2013, Bachelor of Engineering, Control Engineering, Hangzhou Dianzi University, Hangzhou

MAIN RESEARCH INTEREST

VR/AR, Sensor fusion, SLAM, 3D Reconstruction, 3D Geometric Deep Learning.

RESEARCH AND/OR RELEVANT PROFESSIONAL EXPERIENCE

KU Leuven, 05/2021-Present, ESAT Faculty**,** Research assistant, Leuven, 50hrs/Week, Topic: Geometric Deep Learning.
a. Designed algorithm and hardware, for "Adaptive Sampling-based Particle Filter for Visual-inertial Gimbal in the Wild", one Paper finalized, submitted to ICRA 2023.
b. Supervised a master thesis "Surfel-based 3D Mapping and Probabilistic registration".
c. 3D Project in collaboration with Prof. Matthias Niessner from TUM, Germany, on "Implicit Network Model for ill-posed Shape Completion", final experiment phase, paper write-up going on.
d. Focal stack image-based depth estimation via attention-based Transformer model, paper write-up going on, plan to submit in November 2022 to CVPR.

Tongji University, 04/2017—01/2018, EI Faculty, Master Student, Shanghai/Munich**,** 50 hrs/Week, Master thesis (3D reconstruction & assessment framework based on 2D Lidar)**.**
a. Set up SLAM hardware framework all from scratch, including the driver programming, environment, and communication setup between Raspi and PC.
b. Wrote the fusion algorithm for measurements from two 2D Lidars and attitude estimation from IMU, generated a 3D mapping along the motion.
c. Designed a kit for 3D scanning at fixed locations, the scanning at multiple fixed locations can be merged automatically by point-to-plane ICP.
d. Designed and programmed the Octomap-based metrics for offline comparison between the reference map and the query map, to evaluate the map quality quantitatively.

Momenta AI,**12/2020—05/2021,** R&D Centre, Suzhou, 50 hrs/Week, **Senior Algorithm Engineer (full-time)**,
a. Fusion of ultra-sonic sensor and edge detection from image for obstacle avoidance.
b. IMM-based filter along with Ackermann kinematic constraints for vehicle tracking.
c. Active search of empty parking lots and perception fusion.
d. 3D mapping, ground line fusion for static obstacles like pillars, walls, and stepper in the parking lot.

Qualcomm, **06/2018—11/2020,** R&D Centre, Peking. 40 hrs/Week, **Robot System Engineer (full-time)**,
a. Calibrated for camera intrinsic and extrinsic, alignment and synchronization of depth and RGB image frame.
b. VIO improved by EIS (IMM tracking + IMU pre-integration) to improve tracking performance.
c. IR+RGB-based feature fusion to support long-term SLAM over day and night. (PCT patent filed)
d. Research on the integration of object-level semantic information into geometric IoU-based data association, to improve pose estimation accuracy and robustness. (Arxiv paper public)
e. Programmed the EKF-based framework, VO being loosely coupled with IMU, wheel encoder.
f. Enhanced place recognition by CNN-based clustering, to improve re-localization indoors.
g. Visual-inertial odometry based on video stabilization by IMU. (PCT patent filed)

RELEVANT PUBLICATIONS

- Kang, Xueyang, Shengjiong Yin, and Yinglong Fen. "3D reconstruction & assessment framework based on affordable 2D Lidar." *2018 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)*. IEEE, 2018. https://doi.org/10.1109/AIM.2018.8452242
- Kang Xueyang, Wang Lei, "Design of fault analysis and test equipment for C919 aircraft landing gear", *Journal of Electronic Measurement Technology*, China. ISSN:1002-7300. CN:11-2175/TN, 2017, 40(1). http://36.112.18.13/Qikan/Article/Detail?id=671451217&from=Qikan_Article_Detail
- Zhang hui, Kang Xueyang, Feng bin, "Design of automatic test system for fiber optic gyroscope", *Journal of Industrial Instrumentation & Automation*. 2017(01), Page:37-41. https://global.cnki.net/kcms/detail/detail.aspx?dbcode=CJFD&dbname=CJFD2017&filename=GYZD201701007
- Kang Xueyang,Wu Qiuxuan, etc., "The Research Based on Adaptive Fuzzy Control MPPT Algorithms". *Proceedings of the 2012 Annual Conference of Zhejiang Institute of Electronics*. 2012:243-246. https://d.wanfangdata.com.cn/conference/7937164

RECENT PUBLICATIONS (Under Review)

1. Kang, Xueyang, Ariel Herrera, and Henry Lema. "Adaptive Sampling based Particle Filter for Visual-inertial Gimbal in the Wild." arXiv preprint arXiv:2206.10981 (2022). https://arxiv.org/pdf/2206.10981.pdf
2. Kang, Xueyang, and Shunying Yuan. "Robust data association for object-level semantic slam." arXiv preprint arXiv:1909.13493 (2021). https://arxiv.org/pdf/1909.13493.pdf

PATENT

1. Xueyang Kang, Jun Wu, et al, "Vision based 3D obstacle groundline fusion framework". CN Patent (In Application)
2. Xueyang Kang, Leixu, et al, "Collaborative visual SLAM system for wide range of light spectrum". PCT patent (PCT/CN2020/119769)
3. Xueyang Kang, Shunying Yuan, "Robust VIO + EIS module design for mobile applications". PCT patent (PCT/CN2021/070099)
4. K Xueyang, D Xueqing, W QiuXuan, S Yuhong, W Lin, "Self-tuning photovoltaic power optimizer based on dc-dc transform". CN Patent (CN202,406,064U)
5. K Xueyang, D Xueqing, W Maogang, S Yuhong, X Hongfei, "Power supply and control system for solar tour boat". CN Patent (CN202,405,848U)