

SUMMARY

I am interested in 3D computer vision and SLAM algorithms for mobile devices (VR/AR/Robotics). I have experiences on developing robust and safe perception algorithms for spatial AI system. To build an efficient and safe spatial AI system, I follow state-of-the-art algorithms and practise test-driven development.

EMPLOYMENT

- **StradVision** Seoul, South Korea
Algorithm Engineer - Semantic SLAM (Full-time) *Jun. 2021 - Present*
 - Implement visual SLAM algorithms, using deep semantic features and road environment information.
 - Verify performance and safety via auto-benchmark using continuous integration and development (CI/CD).
 - Design modular software architecture, which complies with ASPICE and ISO 26262.
- **Virnect** Seoul, South Korea
Computer Vision Research Engineer / Manager (Full-time) *Apr. 2019 - May 2021*
 - Developed pose estimation and visual localization algorithms for mobile apps in the Perception & ML team.
 - Developed visual tracking software for a number of research projects in the Research Centre.
 - Designed and built an automatic test & benchmark system for continuous integration and development (CI/CD).
- **McKinsey & Company** London, UK
Market Research (Part-time) *Oct. 2017 - Dec. 2017*
 - Performed market research in the AI & Robotics market as the lead student researcher.

PROJECTS

- **Vision-based auto valet parking system (Ongoing)**
Semantic mapping of parking lot and vehicle localization.
 - Simultaneous localization and mapping (SLAM) using multiple fisheye cameras.
 - Sensor fusion of semantic visual features (e.g. road markers) and wheel odometry.
- **Mobile Augmented Reality SDK - Track SDK** [\[LINK\]](#)
Cross-platform SDK for developing Augmented Reality (AR) applications.
 - Developed pose estimation and visual tracking algorithms, such as Image/QR/Model-based tracking and SLAM.
- **Easily Reconfigurable Marker-Based Tool Tracking Module**
Software module that enables easy object pose estimation on pen-shaped objects by using AR markers.
- **Hyperspectral Wide-field Endoscopic Image Registration and Structure-from-Motion**
3D reconstruction of cancer that are invisible by eye, using multi-fibre hyperspectral endoscope.
- **Mobile Rover for Environment Mapping and Survivor Detection in Disaster Scenarios**
Voice-controllable rover, using RGB-D SLAM, object detection, and collision-avoidance - 1st Prize winner in Hackathon.

SKILLS

- **Programming** - C17, C++17 (SSE/Neon), Python, Swift, Rust, MATLAB
- **Vision/SLAM** - OpenCV, Eigen, TensorFlow, PyTorch, Ceres-solver
- **Collaboration** - Git/GitHub, Docker, Linux, JIRA, TDD, Agile

EDUCATION

- **Imperial College London** London, UK
M.Res. Medical Robotics and Image-Guided Intervention (Merit)
Oct. 2017 – Sept. 2018
 - Course representative, Journal club lead
- **University of Warwick** Coventry, UK
B.Eng. Manufacturing and Mechanical Engineering (Upper-Second Class Hons.)
Oct. 2014 – Jun. 2017
 - Course representative, University ambassador

RESEARCH EXPERIENCES

- **Cavendish Laboratory, University of Cambridge** Cambridgeshire, UK
Visiting Researcher (Advisor: Dr. Sarah Bohndiek)
Jan. 2019 – Mar. 2019
- **Surgical Imaging and Biophotonics Laboratory, Imperial College London** London, UK
M.Res Student Researcher (Advisor: Prof. Daniel Elson)
Jan. 2018 – Sept. 2018
- **HARMS Lab, Imperial College London** London, UK
M.Res Student Researcher (Advisor: Dr. George Mynolas)
Oct. 2017 – Dec. 2017
- **Trace Metals in Medicine Laboratory, University of Warwick** Coventry, UK
B.Eng Student Researcher (Advisor: Dr. Joanna Collingwood)
Oct. 2016 – Jun. 2017
- **International Institute for Product and Service Innovation, WMG** Coventry, UK
B.Eng Student Researcher (Advisor: Mr. Graeme Knowles)
Oct. 2016 – Jun. 2017

CONFERENCE TALKS

- **MODUCON 2019** 2019
 - Evaluating customer-focused metrics for developing robust computer vision systems [\[LINK\]](#)
- **PyCon APAC 2019** 2019
 - Robot development with Python (Lightning talk) [\[LINK\]](#)
- **NVIDIA Jetson Meetup** 2019
 - NVIDIA Jetson Nano for intelligent robot development

COMMUNITY

- **Software Bootcamp Instructor** 2022 – Present
Grepp - “Programmers Autonomous Driving Dev course”
- **Community Leader** 2019 – Present
Kakao community - “We will be SLAM Masters”
- **Tech Blog** 2019 – Present
Computer vision and SLAM blog - “cv-learn blog”
- **Industry Seminar** 2019 – Present
Samsung, HANCOM Academy, HANCOM InSpace, J.MARPLE
- **Charity Webinar** 2019 – 2020
Youtube webinar - “A tutorial on object pose estimation”, “A tutorial on visual-SLAM”
- **Study Group Lead** 2019 – 2020
MODU Labs Group Study - “Visual-SLAM”, “Medical imaging”
- **Book Translation** 2018 – 2019
Community book translation: “Introduction to Visual-SLAM”