

Chanoh Park

COMPUTER VISION · ROBOTICS RESEARCHER

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Education

Commonwealth Scientific and Industrial Research Organisation (CSIRO)

Brisbane, Queensland, Australia

Queensland University of Technology (QUT)

PHD. IN ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

April 2020

- Joint PhD program.

Sungkyunkwan University (SKKU)

Suwon, Korea

M.S. IN ELECTRICAL AND COMPUTER ENGINEERING

Feb 2012

Seoul National University of Science and Technology (SNUT)

Seoul, Korea

B.S. IN ELECTRONIC AND INFORMATION ENGINEERING

Feb 2010

Graduate Courses

Pattern Recognition, Robot Vision, Optimization Methods, Computer Vision, Computer Vision Theory, Genetic Algorithms, Advanced Probability and Random Processes, Microprocessor Applications, Advanced Network Design, Lower Power VLSI Design, Analog/Mixed-Signal Design, Digital Integrated Circuits

Research Experience

GroundProbe

Brisbane, Queensland, Australia

COMPUTER VISION AND ROBOTICS RESEARCHER

Nov. 2020 - Now

- Lead developer of BlastVision™
- AI-based Mine Slope Damage Assessment

Queensland University of Technology

Brisbane, Queensland, Australia

RESEARCH FELLOW

May. 2020 - Oct. 2020

- AI-based Mine Slope Damage Assessment

Data61, CSIRO

Brisbane, Queensland, Australia

PHD STUDENT

Nov. 2016 - Apr. 2020

- Research of Continuous-Time Trajectory Representation and Optimization
- Research topics: Visual-Inertial-LiDAR SLAM, Probabilistic Sensor Fusion, Robust Optimization, Life-long mapping, Multi-Modal Sensor Calibration, Deep Map Representation, Deep SLAM

eZRobotics

Suwon, Korea

RESEARCH ENGINEER. (*A SUBSTITUTE FOR MANDATORY MILITARY SERVICE.)

Sep. 2012 - Jan. 2016

- Design, simulation, implementation, and validation of vision-based industrial manipulator kinematics calibration and 3D/2D vision-based robot guidance algorithm.
- Developed a manipulator-based high-precision 3D measurement device with large working volume.

Intelligent Systems Research Institute

SKKU, Suwon, Korea

RESEARCH ASSISTANT

Jan. 2012 - Aug. 2012

- Collaborated in a team to develop a robust 3D object recognition and pose estimation based on double layered particle filtering.
- Implementation of orientation SLAM and simple mono SLAM, intensively reviewed open source materials on filtering-based/graph-based SLAM, and structure from motion.

VLSI Algorithmic Design Automation Lab

SKKU, Suwon, Korea

RESEARCH ASSISTANT

May. 2010 - Dec. 2011

- Designed a fast stereo matching algorithm with wide-dynamic search range, implemented FPGA version of depth map generator.
- Research and development into improvement of 3D video quality of stereoscopic camera by real-time depth map.
- Research and development of high-speed structured light 3D scanner on FPGA.

- Research and implementation of a portable bio-signal processing module.
- Designed analogue filter circuits for estimating ECG and PPG, an analogue signal stabilizer circuit for stable measurement of bio-signals, implemented analogue and digital mixed signal PCB with an 8-bit microprocessor
- Implemented digital signal processing algorithms for bio-signals.

Selected Publication

Conferences

- **CHANOH PARK**, PEYMAN MOGHADAM, SOOHWAN KIM, ALBERTO ELFES, CLINTON FOOKES, SRIDHA SRIDHARAN, "ELASTIC LIDAR FUSION: DENSE MAP-CENTRIC CONTINUOUS-TIME SLAM", ICRA 2018.
- **CHANOH PARK**, SOOHWAN KIM, PEYMAN MOGHADAM, CLINTON FOOKES, SRIDHA SRIDHARAN, "PROBABILISTIC SURFEL FUSION FOR DENSE LIDAR MAPPING", ORAL PRESENTATION, ICCV WORKSHOP 2017.

Journal

- **CHANOH PARK**, SOOHWAN KIM, PEYMAN MOGHADAM, SRIDHA SRIDHARAN, CLINTON FOOKES, "SPATIOTEMPORAL CAMERA-LIDAR CALIBRATION: A MARKERLESS AND STRUCTURELESS APPROACH", IEEE ROBOTICS AND AUTOMATION LETTERS AND ICRA, 2020.
- **CHANOH PARK**, SOOHWAN KIM, PEYMAN MOGHADAM, JIADONG GUO, SRIDHA SRIDHARAN, CLINTON FOOKES, "ROBUST PHOTOGEOMETRIC LOCALIZATION OVER TIME FOR MAP-CENTRIC LOOP CLOSURE", IEEE ROBOTICS AND AUTOMATION LETTERS, 2019.
- **CHANOH PARK**, PEYMAN MOGHADAM, SOOHWAN KIM, SRIDHA SRIDHARAN, CLINTON FOOKES, "ELASTICITY MEETS CONTINUOUS-TIME: MAP-CENTRIC DENSE 3D LIDAR SLAM", UNDER REVIEW, IEEE TRANSACTIONS ON ROBOTICS 2020

Awards & Competitions

2011	2nd place , 7th SoC design contest, Project Title: "Visual Fatigue Reduction HW for User Comfort", Ministry of Trade, Industry and Energy & Seoul National University (SNU)	<i>Korea</i>
2011	2nd place , Core-A processor application design contest 2011, Project Title: "A bio-medical instrument using Core-A", Korean Intellectual Property Office & Korea Advanced Institute of Science and Technology (KAIST)	<i>Korea</i>
2010	5th place , Core-A processor application design contest 2010, Korean Intellectual Property Office & Korea Advanced Institute of Science and Technology (KAIST)	<i>Korea</i>
2008	Appreciation Award , International Capstone Design Fair, Project Title: uDoctor-Health Care System.	<i>Korea</i>

Achievements

Top-up Scholarship	Commonwealth Scientific and Industrial Research Organisation (CSIRO) (AUD \$10k p.a.)	2017-2019
Scholarship	Commonwealth Scientific and Industrial Research Organisation (CSIRO) - Queensland University of Technology (QUT) Scholarship (AUD \$26k p.a.)	2016-2019
Fellowship	Brain Korea 21 Fellowship	2010-2011
Scholarship	IC Design Education Center (IDEC), Korea Advanced Institute of Science and Technology (KAIST)	2011
Scholarship	Tuition fee waiver scholarship (USD \$15k), Seoul National University of Science and Technology (SNUT)	2005-2009

Skills

- Programming**
- Adept in C/C++, Matlab, OpenCV, git
 - Prior experience with Python, Pytorch, PCL, ROS, Cuda, Shader, OpenGL, Verilog

- Embedded System/FPGA**
- Adept in microprocessor architecture and programming
 - Prior experience with ZYNQ, Vivado, ISE

- Other Skills**
- Prior experience with SolidWorks, PowerMill, Orcad