

EDUCATION

- MAY 2017 – **PhD student, Computer Vision and Robotics**,
Department of Computing Science, University of Alberta, Canada
- SEPT. 2016 – APR. 2017 **PhD student, Construction Engineering & Management**,
Department of Civil & Environmental Engineering, University of Alberta, Canada
- JUL. 2012 **MEng, GIS**, Wuhan University, China
- JUL. 2010 **B.Eng, Geodesy and Geomatics**(Satellite Navigation Engineering)
Wuhan University, China
- JUL. 2010 **B.Eng, Computer Science and Technology**(Dural Major)
Wuhan University, China

CERTIFICATES

- MAR. 2015 **Project Management Professional(PMP), PMI, USA**
License #: 1808776 | Project Management Institute(PMI)

SKILLS AND EXPERIENCE

- Specialty:** ROS, OpenCV, ViSP, Tensorflow(Keras), PyTorch, GIS, Web Front&Back End Dev
- Programming:** Proficient in [C#, C++]; Familiar with [Python, R, Matlab, Java, javascript, html/css]
- Database:** 6+ years' project experience with [Oracle, PostgreSQL, MS SQLServer]; Mostly used [MySQL]
- Hardware:** 10+ years' experience in sensor integration [RS232/485, SPI, Analog, Bluetooth, Zigbee]
- Management:** 3+ years' Administration Experience in [R&D, Product Deploy, Customer Support and Marketing]
6 years' Project Management Experience (contract value Avg. 1 million USD)

WORK EXPERIENCE

- MAY. 2017- **Senior Software Engineer** (Part-time)
BIMiner Technologies Inc., Edmonton, AB., Canada
- NOV. 2010-JUL. 2016 **Deputy Director General**
Intelligent Monitoring & Controlling Div., *Changsha Research Institute*, CHALIECO
**Youngest senior manager in company's 51 years history.*
- AUG. 2010-NOV. 2010 **Software Engineer Intern** (Web GIS dev)
Nanjing City Urban Planning Bureau, Nanjing, China
- AUG. 2009-NOV. 2009 **QA Intern** (In-Vehicle ITS navigation data logic check)
Kotei Informatics Co., Ltd

STUDENT PROJECTS

- MAR 2018-SEPT 2018 **Robot eye-hand coordination learning by watching human demonstrations**
Overview: We designed a method which can directly learn fine manipulation skills by watching human demonstrations and provide task interpretability.

- Role: – Algorithm design (Inverse Reinforcement Learning + Uncalibrated Visual Servoing)
 – Implementation (PyTorch + ROS + WAM control Barrett Lib)
 – Experiments Design
- MAY 2018–
 Overview: **Haptic Device Design for Robot Tele-operation**
 We designed a device which can provide haptic feedbacks during robot tele-operation.
 Role: – Brushless DC (BLDC) motor torque control module design
- AUG 2017–APRIL 2018 **KUKA Innovation Award 2018: Online Tool and Task Learning via Human-Robot Collaboration**
 **We were among top 5 finalist and invited for a live demo in Hannover Messe 2018.
 Overview: We designed a robotic system that can acquire knowledge incrementally via HRI.
 Role: – ROS + Sunrise JAVA integration, using UDP communication; Strokes generation.
- AUG 2017–SEPT 2017 **Hybrid Vision & Force Control**, live demo for KUKA, IROS 2017, Vancouver, Canada
 Overview: We were invited to demo a system which can directly read human drawings and control a KUKA iiwa LBR-14 robot to draw on any irregular surfaces (e.g., a pumpkin).
 Role: – ROS + Sunrise JAVA integration, using UDP communication
 – Force & orientation control during drawing (Sunrise JAVA)
 – System module design (ROS)
- NOV 2017–
 Overview: **Robot Fine Manipulation for Tele-operation under Time-delay Network Conditions**
 We designed a coarse-to-fine manipulation system for tele-operation under time-delay network conditions using 3D geometric shape reconstruction and visual servoing.
 Role: – System design (ORB SLAM + CARV integration)
 – Inverse Kinematics Solver (PBVS approach) + hand-eye calibration solver
 – Experiments Design
- APRIL 2017–MAY 2017 **Robotic Photocopy Machine, RPM**, CMPUT615 course project, University of Alberta
 Overview: Show our robot a picture, it can replicate it in an unrealistic style using Chinese calligraphy.
 Role: – System design (OpenCV + ROS + ViSP)
 – Experiments design
- SEPT 2016–FEB 2017 **Underwater Buoy Detection**, ARVP project, University of Alberta
 Overview: The goal is to detect underwater buoys from a far distance and regardless of the light attenuation effect which is common in underwater computer vision.
 Role: – Algorithm design (geometric shape detector)
 – Implementation (OpenCV + ROS)
 – We ranked 7 in RoboSub 2017.

WORK PROJECTS

- JUNE 2015–MAY 2016 **Robotic Probe for Environmental and Spatial Information Detection in Hazardous Underground Mining Areas**
 Role: Co-Principal Investigator
- AUG. 2013–MAY 2016 **Intelligent Online Mining System**
 Role: Co-Principal Investigator, System Design
- MAR. 2013–MAY. 2015 **Water Environment Online Monitoring System**
 Role: Software Engineer
- JUNE 2012–AUG. 2013 **High precision Remote Control and monitoring System using a Geo-Robot**
 Role: System Architect, Hardware Engineer, Software Engineer
- NOV. 2010–JUNE 2012 **Online Monitoring System for the Safety of Mines**
 Role: System Architect, Software Engineer, Hardware Engineer

AUG. 2010–NOV. 2010 **Location Based Service of CORS in Nanjing City**
Role: WebGIS Software Engineer
MAR. 2008–AUG. 2009 **Geometric Shape Measurement System for High-speed Train Railways.**
Role: WinCE Software Engineer

AWARDS

Top 5 Finalist, KUKA Innovation Award, HANNOVER MESSE 2018 (proudly as member of Team Alberta)

-KUKA AG, Hannover, Germany, APRIL. 2018

1st Prize, Science and Technology Awards (ranked 2nd among 15 contributors)

-Chinese Society of Nonferrous Metals, DEC. 2013

2nd Prize, Progress in Science and Technology Awards (ranked 3rd among 10 contributors)

-National Administration for surveying, mapping and Geoinformation, China, Nov. 2012

2nd Prize, Progress in Science and Technology Awards (ranked 4th among 9 contributors)

-Government of Hunan province, China, JAN 2015

Best Employee (awarded to 20 out of 15,000 employees of CHALIECO)

-CHALIECO, DEC 2012

1st Class Excellence Fellowship for Graduate Students

-Wuhan University, 2010-2012

Best Paper Award

-Academic Degrees Committee of Hubei Province, China, JULY 2010

PATTERNS AND PUBLICATIONS

-Publications-

- J. Jin, L. Petrich, M. Dehghan, Z. Zhang, M. Jagersand, "Robot eye-hand coordination learning by watching human demonstrations: a task function approximation approach", <https://arxiv.org/abs/1810.00159> (submitted to ICRA 2019).

-Patterns-

- Precision Mining System Integrated with GNSS Applied in Open Pit Mine, Patent CN2015100353258
- Geo-robot Control System for safety monitoring, Patent CN2012105053542
- A excavation guidance system for backhoe excavators, Patent CN2016107293106
- A method for data transparent transmission and network connectivity detection, Patent CN2016108706657
- An electrical cross border warning system for open pit mining, Patent CN2016209089621
- A safety-status warning System for backhoe excavators, Patent CN201610945906X
- Object Oriented Data Storage Method for safety monitoring systems, Patent CN2013104700357
- Automatic Data Acquisition and Storage Method in GPS Monitoring Network, Patent CN2014100081719