JINGPEI LU

9192 Regents Road, La Jolla, CA 92037
(858)766-8161 ⋄ lujingpei557@gmail.com ⋄ jingpeilu.github.io

EDUCATION

M.S. in Electrical and Computer Engineering September 2018 - June 2020
University of California San Diego, CA, USA GPA: 3.69 / 4.0
Area of focus: Intelligent System, Robotics and Control

B.S. in Electrical and Computer Engineering September 2014 - June 2018
University of California San Diego, CA, USA GPA: 3.57 / 4.0
Area of focus: Machine Learning

RESEARCH EXPERIENCE

End-effector Pose Estimation for Robotic Manipulator April 2020 - Present
UCSD Advanced Robotics and Control Lab

- Proposed a keypoints optimization algorithm to improve the performance of end-effector localization
- Utilized simulation software to generate large synthetic dataset for deep neural network training and sim-to-real transfer

Semi-autonomous Telesurgery System September 2019 - Present
UCSD Advanced Robotics and Control Lab

- Collaborate with scientists at SRI International on simulated robotic teleoperation
- Develop the visual servo module for the semi-autonomous telesurgery system

The Surgical Perception Framework April 2019 - March 2019
UCSD Advanced Robotics and Control Lab

- Efficiently integrated a surgical tool tracker and a deformable tissue tracker into ROS for autonomous robotic manipulation
- Improved the tracking and reconstruction accuracy of the surgical perception framework by exploiting state-of-the-art deep neural networks
- Experimented the framework on the da Vinci Surgical® System for real-time tissue manipulation tasks

Image Retrieval System for Plankton Images January 2018 - September 2018
The Statistical Visual Computing Laboratory

- Developed a content-based image retrieval system for plankton images using a deep convolutional neural network which assisted biological oceanographers in researching and labeling the plankton images
- Researched on different machine learning and deep learning methods, which accelerated the searching process and improved the precision of the baseline retrieval system by about **30%**
- Presented our work on UC San Diego's Summer Research Conference (SRC 2018)

PAPERS

J. Lu, A. Jayakumari, F. Richter, Y. Li, and M. C. Yip, "SuPer Deep: A Surgical Perception Framework for Robotic Tissue Manipulation using Deep Learning for Feature Extraction," arXiv:2003.03472, 2020.

Y. Li, F. Richter, **J. Lu**, E. K. Funk, R. K. Orosco, J. Zhu, and M. C. Yip, "SuPer: A Surgical Perception Framework for Endoscopic Tissue Manipulation with Surgical Robotics," in *IEEE Robotics and Automation Letters*, vol. 5, no. 2, pp. 2294-2301, April 2020. (RA-L with ICRA presentation)

PROFESSIONAL EXPERIENCE

Educational Vision Technologies, Inc. July 2019 - December 2019
Machine Learning Lead *La Jolla, CA, USA*

- Managed and directed a group of undergraduate students in developing the speech recognition server
- Developed the automated slides video segmentation framework, which achieves **97%** accuracy on recall and **74%** accuracy on precision comparing to human labeling
- Built the testing frameworks to ensure the product functions properly and meets the business needs

Wangsu Science & Technology Co., Ltd. July 2017 - September 2017
Technical Support Engineer *Xiamen, China*

- Assisted the technical support team in diagnosing and resolving the system issues and creating standard procedures for proper escalation of unresolved issues to the appropriate internal teams
- Managed the company's recruiting training program

TEACHING EXPERIENCE

University of California, San Diego January 2019 - December 2019
Teaching Assistant, Jacob School of Engineering

Course: Introduction to Digital Design (90.9% recommendation rate)

TECHNICAL SKILLS

Programming	Python, C/C++, Matlab, Cuda
Tools	Tensorflow, Pytorch, ROS, Git, Linux, Docker, LaTeX
Language	Proficient in English and Chinese

SELECTED GRADUATE COURSES

Neural Networks for Pattern Recognition (A+); Deep Learning and Applications (A); Robot Reinforcement Learning (A+); Computer Vision I (A); Digital Image Processing (A+)

SELECTED PROJECTS

Autonomous R/C Vehicle

- Built a remote control vehicle that can autonomously run on an outdoor scaled track from scratch
- Developed the traffic signs recognition functionality and speeded up the video processing efficiency **three times** using the multi-threaded approach

Drone Integration for RF Scanner Payload

- Integrated an RF scanning payload with a drone (DJI Matrice 100) to automate the processes of detecting wireless signal's strength in open area
- Developed a mobile app to record the signal strength data and generate the heatmap which can visualize the data better

EXTRA-CIRRUCULAR

IEEE Quarterly Project Award

Certificate of Violin National Tenth Grade

UC San Diego Intramural Soccer Competition

Deep Learning Nanodegree Program at Udacity