Ms. LI Xueqian

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RESEARCH INTERESTS

Computer Vision, Machine Learning: 3D point cloud registration, 3D object detection, visual place recognition.

EDUCATION

Sep. 2017-May. 2019	College of Engineering, Carnegie Mellon University Degree: M.S. in Biomedical Engineering
Sep. 2013-Jul. 2017	College of Plant Science, Jilin University Degree: B.S in Biotechnology
Sep. 2014-Jul. 2016	College of Computer Science and Technology, Jilin University Dual Degree: B.E. in Computer and Application

COURSES HIGHLIGHT

Introduction to Machine Learning (10-601A)
Computational Bio-Modeling and Visualization (24-658)
Deep Reinforcement Learning and Control (10-703)
Biomedical Engineering Systems Modeling and Analysis (42-302)
Computer Vision (16-720B)
Neural Signal Processing (18-698)
Probabilistic Graphical Models (10-708)
Convex Optimization (10-725)

RESEARCH EXPERIENCE

Jun. 2019-Now **CI2CV Lab (Dr. Simon Lucey)**

- Study on PointNet encoding
- Multi-resolution sampling-based point cloud registration

Oct. 2017-Now **Biorobotics Lab (Dr. Howie Choset)**

- Point cloud registration using Siamese network structure and PointNet encoding (PCRNet)
- Voxel-based 3D object detection in KITTI dataset
- Visual place recognition using CapsuleNet-based feature extraction and entropy-controlled separation modules
- Multi-resolution sampling-based sequential searching on visual place recognition under various environments
- Accurate Real-time Da Vinci surgical robot tool segmentation using deep learning

Sep. 2014- Jun. 2017 **Host-Microbe Molecular Interaction Laboratory (Dr. Qingming Qin)**

- Cloning and functional identification of the strong promoter *Pef1* of *Botrytis cinerea* independently
- Molecular dissection of *Septin* protein *Sep4* in mediation of infection structure formation

Oct. 2014- May.2017 **National University Student Innovation Program team (Dr. Guihua Li)**

- Leader, undertook a project "Distribution Model of Nuclei of Multinuclear Fungi—*Botrytis cinerea*"

Jul. 2014- Aug. 2014 **Maize Biology Lab (Dr. Yaping Yuan)**

- Member, research on maize pollination and molecular biology

Jan. 2014- Feb. 2014 **Anhui Academy of Applied Technology**

- Member, participated in a provincial project "Comprehensive Exploitation of Jiuhua *Polygonatum sibiricum*"

COURSE PROJECT

- ***10-708 Probabilistic Graphical Models (Dr. Eric Xing):*** Using various deep kernels in time-varying networks for reverse-engineering of gene interaction
- ***16-720 Computer Vision (Dr. Simon Lucey):*** 3D reconstruction and Lucas-Kanada tracking using difference of Gaussian pyramid features and ORB descriptor
- ***10-703 Deep RL and Control (Dr. Tom Mitchell, Dr. Katerina Fragkiadaki):*** Grid-world navigation using various deep reinforcement learning techniques
- ***24-658 Computational Bio-Modeling and Visualization (Dr. Yongjie Zhang):*** Mesh quality improvement using the implicit fairing with curvature flow

TEACHING EXPERIENCE

Jul. - Aug. 2015 Served as a private mathematics / physics tutor during summer vacation

ACADEMIC HONORS

2017 Scholarship with offer by Carnegie Mellon University

2013- 2016 Academic Achievement Scholarship every semester sponsored by Jilin University

2013- 2016 Outstanding Student Medal of College each year

2013- 2014 Individual Scholarship sponsored by Jilin University

SIGNIFICANT AWARDS

Mar. 2016 First Place for Jilin College Student Bridge Championships

Sep. 2015 Third Prize of China Undergraduate Mathematical Contest in Modeling (CUMCM) in Jilin
First Place for Jilin College Student Bridge Championships

May.2015 Second Prize for Brand C in 2015 National English Competition for College Students (NECCS)

Mar. 2015 Second Prize of 2014-2015 Winter Vacation Social Practice Contest

Nov. 2014 Second Place for Herbarium Contest sponsored by College of Plant Science

Sep. 2014 Seventh Place for the Women's 1500m of Jilin University Sports Meeting

Jun. 2014 Excellence Award for "Reading During Spring and Summer" Essay Competition

Apr. 2014 Third Place for Changchun College Student Bridge Competition

SOCIAL ACTIVITIES & MEMBERSHIP

Mar. 2014-Sep. 2015 Vice-President of Yonghe Bridge League of Jilin University

Dec. 2013-Dec. 2015 Member of "Walk with Light" caring for autistic children

PUBLICATION

We have successfully submitted a paper to ***AAAI (2020)*** regarding the deep learning-based point cloud registration.

Sarode, V.*, **Xueqian Li***, Goforth, H., Aoki, Y., Srivatsan, R. A., Lucey, S., & Choset, H. (2019). PCRNet: Point Cloud Registration Network using PointNet Encoding. arXiv preprint arXiv:1908.07906.

Yin, P.*, Xu, L., **Xueqian Li**, Yin, C., Li, Y., Srivatsan, R. A., ... & He, Y. (2019). A Multi-Domain Feature Learning Method for Visual Place Recognition. ***ICRA 2019***.

Yin, P.*, Srivatsan, R. A., Chen, Y., **Xueqian Li**, Zhang, H., Xu, L., ... & He, Y. (2019). MRS-VPR: a multi-resolution sampling based global visual place recognition method. ***ICRA 2019***.

Feng, H. Q., Li, G. H., Du, S. W., Yang, S., **Xueqian Li**, de Figueiredo, P., & Qin, Q. M*. (2017). The septin protein S ep4 facilitates host infection by plant fungal pathogens via mediating initiation of infection structure formation. ***Environmental microbiology***, 19(5), 1730-1749.

TECHNICAL SKILLS

Programing Language: Python, Matlab, C, HTML Tools: Latex, Dreamweaver, Emacs

Deep learning tools: Tensorflow, Pytorch, Tensorlayer