

HENGYUE LIU

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EDUCATION

University of California, Riverside

Ph.D. in Electrical Engineering.

Advisor: Prof. Bir Bhanu.

Expected Jun. 2022

GPA: 3.85/4.0

University of Southern California

M.Sc. in Electrical Engineering (Multimedia and Creative Technologies).

Jan. 2015 - Dec. 2016

GPA: 3.83/4.0

Beijing University of Posts and Telecommunications

B.Sc. in Telecommunications Engineering with Management.

Joint program with Queen Mary University of London.

Advisor: Yan Shi.

Sep. 2010 - June. 2014

GPA: 85.6/100

EXPERIENCE

Latent AI

Research Intern

Jun. 2019 - Sep. 2019

Princeton, NJ

- Implemented throttleable neural networks (TNN) that can save energy based on run-time environment. The utilization of the whole network can be as low as 10% while maintaining high accuracy for many vision tasks.
- Designed and implemented image classification, object detection and gesture recognition TNN models with gate-able 2D/3D convolutional and fully-connected layers.
- Implemented and experimented controller networks to adaptively control throttleable neural networks for best energy-accuracy trade-off using Deep contextual bandit network variant. For gesture recognition systems, the run-time power is much lower when there is no gesture and higher when scene changes on demand.

Frenzy Labs Inc

Head of Computer Vision

Feb. 2017 - Aug. 2017

Los Angeles, CA

- Managed a small team of 5 engineers for building exact garment visual search APIs and systems as a team leader and full-stack engineer, and helped the company secure seed funding.
- Designed and implemented deep learning architectures for fine-grained garment classification. A hierarchical model was developed consisting of a base architecture such as VGG-19 and Inception-v3 for coarse classification (shoes, tops, bottoms, etc.), and several sub-category classifiers (high heels, loafers, sneakers, etc.).
- Implemented RESTful APIs and back-end modules for keypoint detection and object recognition.
- Implemented a parallel query and process job client and server application for retrieving product images given certain cues (e.g. garment category, material, color, etc.).
- Configured and deployed the landing page and web applications on AWS EC2 server.

CloudSight Inc

Computer Vision Intern

May. 2016 - Dec. 2016

Los Angeles, CA

- Implemented a large-scale image retrieval system (over 10k images) with Bag of Words matching and term frequency inverse document frequency (tf-idf) structure.

- Implemented an image sentiment evaluation algorithm/text classification through Word Embedding and Convolutional Neural Networks with 95.9% accuracy.
- Implemented a dense circular object detection and counting algorithm with 95% accuracy and 0.89 recall using traditional image processing techniques such as Hough transform and Morphological operations.

Tsinghua University
Software Engineer Intern

Jul. 2013 - Sep. 2013
Beijing, China

- Implemented an accurate disease prediction web services for a large project "Community Health Care Cloud Platforms" involving 32 members from different disciplines. The prediction is a mixture of data regression and medical formulas on over 20 different types of measurements of human body.
- Assisted in implementing and testing the online user management system over 80 hours.

PUBLICATIONS

- [1] **Hengyue Liu** and Bir Bhanu. Pose-guided r-cnn for jersey number recognition in sports. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, June 2019 ([link](#)).
- [2] **Hengyue Liu**, Samyak Parajuli, Jesse Hostetler, Sek Chai, and Bir Bhanu. Context-aware control for dynamic execution of throttleable neural networks, 2020 (Under review)
- [3] **Hengyue Liu** and Bir Bhanu. Content-based player identification and tracking in soccer videos, 2020 (Work in progress)

ACADEMIC SERVICES

Research Assistant

UCR VISlab, advised by Bir Bhanu.

Fall 2018, Spring 2019, Fall 2019

BUPT State Key Lab of Switching and Networking, advised by Yan Shi.

May 2013 - May 2014

Teaching Assistant

TA for class Engineering Circuit Analysis I (UCR EE 001A).

Winter 2019

Reader

Reader for class History of Science and Technology (UCR ENGR/HIST 108).

Fall 2019

Reader for class Computational Learning (UCR EE 244).

Fall 2019

HONORS AND AWARDS

Dean's Distinguished Fellowship, UC Riverside.

2017

Mathematical Contest in Modeling Meritorious Winner (top 15% of 6000 teams worldwide).

2013

1st-class college scholarship, BUPT (top 10%).

2011, 2012, 2013

China National Tri-Merit Student (top 1%).

2010

TECHNICAL SKILLS

Languages	Python, Matlab, C/C++, Java, PHP, HTML, Javascript, Shell Script, SQL.
Frameworks	Tensorflow, Keras, PyTorch, Caffe, Torch, MXNet, Scikit-learn, OpenCV.
Miscellaneous	Git, L ^A T _E X, OpenMP, OpenGL, Docker, Amazon Web Services, Spark, Supervisor, Gearman, AngularJS.
Software	Blender, Unity, Adobe Illustrator, Adobe Photoshop.