Jingyuan (Patrick) Chen

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EDUCATION

Chengdu Shude High School	Chengdu, China	*Sep. 2017-Jun. 2020*
Chengdu Foreign Languages School	Chengdu, China	*Sep. 2014-Jun. 2017*

RESEARCH PUBLICATIONS

- Dual-Modality Vehicle Anomaly Detection via Bilateral Trajectory Tracing **(Oral, Spotlight)**

  2021 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshop（CVPRW), Accepted on Apr. 18

- Evaluation of Transportation Systems and Novel UV-Oriented Solution for Integration, Resilience, Inclusiveness and Sustainability **(Oral)**

  *L Xu, L Li, K Liu, J Zhang, Y Chang, Y Fang, H Yuan, Z Yang, **J Chen**, Y Wang, Y Fang*

  2020 5th International IEEE Conference on Universal Village (UV)

- Real-Time Anomaly Detection and Feature Analysis Based on Time Series for Surveillance Video **(Oral)**

  *R Xue, **J Chen**, Y Fang*

  2020 5th International IEEE Conference on Universal Village (UV)

RESEARCH/PROJECTS

Artificial Intelligence & Machine Vision Lab, Wuhan University

Visiting Scholar   *Nov.2020-Present*

- Led the project titled Few Shot Video Anomaly Detection under the supervision of Prof. Zhenzhong Chen
- The research aimed to learn a good semantic representation of that video and describe the relationship between objects
- Led the computer vision group at AI and ML Lab at Wuhan University to attend the NVIDIA 2021 AI City Challenge, won third place worldwide among all competitors with a relatively subtle difference in the final score. **(Spotlight)**
- Currently attending to VisDrone Competition hold by International Conference on Computer Vision (ICCV) for crowd counting task with multi-modality.

MIT CSAIL Universal Village Program (UV)

Intelligent Transportation System Research Leader, Coordination Team Member   *2018-Present*

- Organize weekly progress-update meetings
- Prepared for the publications on IEEE Conference on UV 2020
- Led the research and aforementioned paper on a systematic solution to current transportation systems; focusing on flow control, traffic prediction, multi-object optimization, and smart monitoring
- Contributed to the aforementioned paper on a systematic solution to current energy management systems; focusing on

multiple-input & multiple-output system design

- Led the research and aforementioned paper on real-time anomaly detection; focusing on supervised machine learning multi-events anomaly detection and behavior understanding. The novel, fast, and robust algorithm reached a highest accuracy exceeding 92.4% after model fusion **(Spotlight)**
- Conducted an unpublished research project on a crowd management system; focusing on a semi-supervised machine learning smart monitoring system for a large-scale crowd scenarios.

Robotics Teams (Ninest Tree & Robotics Revolution) for First Tech Challenge (FTC)

Captain/Mentor   *2018-2020*

- Developed computer vision multi-sensor-based SLAM algorithms for robot self-navigation
- Taught team members Java language, algorithms such as PID control, Kalman Filter
- Realized object recognition with computer vision algorithms: color space conversion, color-based segmentation
- Was awarded Winning Alliance Captain (National) and Inspire Award (Highest award & National)

Summer Program, Department of Machine Intelligence, Peking University

Student Researcher   *Jul. 2018-Sep. 2018*

- Consummated the basic learning of C++ language, mainly to learn the introductory knowledge of computing, algorithm design, function, multidimensional array, pointer, linked list, recursion, etc.
- Implemented OpenCV library to develop pattern recognition, human gesture recognition, front fleet vehicle recognition
- Sensed the surroundings by combining a laser sensor & Kinect
- Managed ten parameter forms of PID to control the motor and servo of the robot to reduce the oscillation caused by data fluctuation

INTERNSHIPS

Tencent (Shengzhen Headquarter)

Research Intern   *May. 2021-Present*

- The youngest (eighteen) formal intern (paid) ever at Tencent AI Lab **(Spotlight)**
- Research at AI Lab led by well-known computer scientist Zhengyou Zhang (World Ranking 240th according to Guide2Research) at Tencent headquarter
- Conducting contrastive learning research for multi-modality
- Develop object detection algorithm for wild animal conservation

Ultrabright Education, Utech Academy

Teaching Assistant   *Mar. 2021-Present*

- Aid Ph.D. Zhen Zhu to give lectures on Recommendation System
- Supervised the learning status and researching progress
- Co-lead the research group for Recommendation System

HONORS AND AWARDS

- 3rd place among all competitors with a relatively subtle difference in the final score, NVIDIA AI City Challenge in April 2021 **(Spotlight)**   Post-graduate
- 19/130, FTC World Championship (top 14.6%, highest rank among Chinese teams), International   Grade 11
- Think award (1/40, Top 2.5%), FTC Hongkong Division, International   Grade 11
- Most Innovative Award, Utech Academy, International   Post-graduate
- Inspire Award & Championship Alliance Captain, 2017 FTC Chongqing Competition, Regional   Grade 10
- Championship Alliance & Connect Award, 2017 FTC Chongqing Competition, Regional   Grade 10
- 2nd Prize, FLTRP Cup Junior School English Competition, National   Grade 9

- 2nd Prize, NEPCS National Senior School English Competition, National — Grade 10
- Outstanding Student Leader (20/1800, top 1.1%), Regional — Grade 9
- Outstanding Student Leader (17/650), School — Grade 10

EXTRACURRICULAR ACTIVITIES

The IEEE International Conference on Universal Village

Organizer/Attendant/Author *Oct. 2019-Present*

- Proposed and organized UV Student Forum, UV K-12 Challenge, and UV2020 Pitch Competition
- Presented a paper titled Real-Time Anomaly Detection and Feature Analysis Based on Time Series For Surveillance Video, admitted by IEEE UV 2020 Conference (Smart Response System for City Emergency)
- Presented a paper titled Evaluation of Transportation Systems and Novel UV-Oriented Solution for Integration, Resilience, Inclusiveness & Sustainability, admitted at IEEE UV 2020 Conference (ITS, Urban Planning & Crowd Management)
- Contributed to a paper titled Evaluation of Energy Systems and Novel UV-Oriented Solution for Integration, Resilience, Inclusiveness & Sustainability, admitted at IEEE UV 2020 Conference (Smart Emergency Management System)

UTech Academy 2020

Attendant *Jul. 2020-Aug. 2020*

- Attended UTech Academy 2020, participated in the computer vision session, and mastered multi deep learning models (CNN, ResNet, VGG19, GAN, etc.)
- Developed a real time facial expression recognition application with fine-tuned VGG Model and reached an accuracy exceeding 85%

Department of Literature and Art

Minister *2017-2020*

- Held meetings, distributed works, sought sponsors, trained junior students, acted as emcee of galas, and organized the design and painting work of the lyrics papers for the music radio broadcast
- Organized and presided over literacy shows and galas such as the December 9th Gala, Jump In literacy shows, Welcome Gala, and English Melodrama
- Wrote documents like emcee scripts, event notifications, department regulations, event proposals
- Promoted team cohesion by holding team-building events

Shude High School Activities

Host/Organizer/Leader *2017-2019*

- Organized extramural leadership seminars
- Managed the site planning of the Exhibition of Moral Education Seminar and led our robot team members to finish multiple tasks in front of the media
- Presided over the Comprehensive Practice Lecture and addressed a speech about my summer research experience at Peking University
- Organized sports games, the Learning Experience Exchange Seminar, and speech competition

Model United Nations (MUN)

Participant/Organizer *2017-2019*

- Attended the 2018 Fall MUN held by Shude High School
- Participated in the History Council Conference, discussing the Ukraine Crisis, represented Russia & proposed proposals and wrote a resolution paper
- Attended the 2019 Spring MUN of Chengdu, discussing the Middle East Refugee Crisis, acted as a committee member

representing the Netherlands in the European Commission, wrote a resolution script
- Organized the 2019 MUN of Shude High School, and sought sponsors to help hold the conference

Warm Winter Voluntary Program

Organizer/Volunteer   *2017-2020*
- Organized activities (performance, making soaps, making dumplings, celebrating Chinese New Year) at Sunshine Home and Chengdu Nianci Chang Pension Service Center
- Developed a new program to exchange labor for goods in stores and restaurants, devoting the goods to welfare institutions like the Elderly Service Center and Child Welfare Center

Cat Ear Music Association

Acting manager/Lead singer   *2017-2019*
- Held club meetings to arrange works
- Organized band rehearsal preparations for performances
- Umpired the Voice of Shude High School
- Organized the 2019 Cat Ear New Year's Concert, took charge of works involving the venue, publicity, recording, lighting, and dance
- Performed the song "The Mercury" as a lead singer, rehearsed with guitar, bass, piano, and drums

Finals of Future City Competition Sichuan Division

Host/Student manager   *Mar. 2018-Jun. 2018*
- Assisted the Sichuan Association for Promotion of Educational Excellence in planning the pit area and decorated the exhibition field
- Coordinated the time and site schedule of the competition
- Received judges and guests, presided over social media
- Wrote and modified bilingual host words, led judges and guests to the pit area, then asked attending teams to introduce their design for future cities
- Hosted the opening ceremony, presentation activity, and closing ceremony of the competition
- Coordinated with relevant departments such as the Youth Volunteers Association to carry out reception work

Seiwajyuku Activities

Volunteer/Participant   *2016-2018*
- Attended several philosophy and management courses held by Seiwajyuku, a management school founded by well-known Japanese entrepreneur Kazuo Inamori, who successfully operated three top 500 companies
- Led the members in participating in the course named The Six Endeavors and won recognition as team leader
- Learned more in-depth thinking about philosophical life
- Participated in the global tour speech of Nick Vujicic, a famous Australian speaker, and had dinner together in Chengdu, and translated some of Nick Vujicic's dinner speeches

First Tech Challenge (FTC)

Team Leader/Program Engineer   *2017-2019*
- Attended the 2019 First Tech Challenge World Championship in Houston
- Attended the 2019 First Tech Challenge Hong Kong Competition
- Attended the 2017 First Tech Challenge Chongqing Competition
- Attended the 2017 First Tech Challenge Xi'an Competition

PROFICIENCIES AND INTERESTS

- **Computer Language:** C++ (Proficient), Java (Proficient), Python (Proficient)

- **Computer Development Library:** TensorFlow, PyTorch, OpenCV, Scikit-Learn, Matplotlib
- **Mathematical Skills:** Discrete math, Calculus, statistics, Linear Algebra
- **Fields of Interests:** Computer Vision, Machine Learning, Recommendation System, Information Retrieval
- **Interests:** Vocal Music-Band Singer, Broadcasting & Hosting, Badminton
- **Communication Skills:** Public Speaking- 3rd Place in 2015 New Oriental National High School English Speaking Competition, Debate