Jiajie(Chance) Li

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Education

Tongji University Shanghai, China
B.Eng in Software Engineering, Concentration in Media Art and Science; GPA: 92.86/100 *Sept. 2018 – July. 2022*

- **Supervisor**: Prof. Shengjie Zhao, Prof. Hongming Zhu
- **Honors and Awards**: NITORI International Scholarship(**Top 1/437**); National Scholarship(**Top 1%**)
- **Leadership**: President of the Red Cross; President of the Tongji Apple Club; Vice President of Lenovo Idea Elite Association; Member of the National Innovation Project; Member of Tongji University's Entrepreneurial Valley Project
- **Relevant Coursework**: GIS, 3D Modeling and Film Post, Data Structure, Digital Image Processing, Computer Algorithm, Computer Vision, Probability Theory and Mathematical Statistics, Discrete Mathematics, Software Architecture and Design Patterns, Database Principles and Applications, Computer Networks

Tongji University Shanghai, China
Transfer Program - Freshman Year, Major in Civil Engineering *Sept. 2017 – July. 2018*

Research Experience

Future Lab, Tsinghua University Beijing, China
Research Assistant *Mar 2021 - Present*

- **Digital Zoo**: Use infrared sensors and sonar sensors to perceive and visualize ecological data.

City Science Lab@Shanghai Shanghai, China
Undergraduate Researcher *Apr 2019 - Present*

- **Equity WITHOUT Zoning**: Proposed to hold the workshop in the form of a serious game; participated in the prototyping and workshop logic discussions; transformed GAMA Platform into a web page and deployed it containerized on computing resources and used load balancing tools to make it robust and efficient during the workshop.
- **Camera Data Analysis**: Designed a three-stream deep convolutional neural network for the case of LivingLine to judge the the interaction behavior of pedestrians; Implemented deep learning methods to privatize the identity information in the video and automate the blurring of the face; Used the Laplace operator to calculate the number of dwell points in the pedestrian path; Analyzed and visualized the path distribution and frequency of pedestrians on the plane, and integrated the results from multiple cameras; Transformed the image information captured by the camera into a 3D coordinate system and visualized the result of pedestrian interaction judgment and path information using Unity3D and CAD; Participated in thesis writing; This work presented in Can Wang, Yan Zhang, Yang Liu, Yuanda Hu, **Jiajie Li**, et al., "Identifying human interactions in built environment: deep learning analytics on camera data for urban vibrancy evaluation", published in the International Conference on Urban Studies as a presentation, 2020.
- **WiFi Data Analysis**: Implemented clustering paths using network representation learning.
- **Social Media Data Analysis**: Designed and developed a new crawler framework to crawl some information sources (such as WeChat Official Accounts) that cannot be retrieved by traditional methods.
- **Network Infrastructure Operations and Maintenance**: Deployed intranet penetration for lab computing resources during Covid-19, allowing lab members to access remotely and work properly; Maintained server failures in daily work.

School of Software Engineering, Tongji University Shanghai, China
Research Assistant, Supervior: Prof. Yang Shi *Sept 2020 - Mar 2021*

- **Using Event Cameras to Identify Human Biological Information to Protect Data Ethics**: Used the non-pixel-based Neuromorphic Vision Sensors (NVS), proposed new encryption algorithms for event camera, and used graph convolutional neural networks to identify human biological information(gait) to accomplish traditional tasks while protecting privacy and data ethics. Work presented in B. Du, **J. Li**, Z. Wang, W. Li, T. Gao, M. Xu, and Y. Shi, "An Efficient Encryption Scheme for Neuromorphic Vision Sensors", under preparation for IEEE Sensors, 2021.

Center of Digital Innovation (CDI) Shanghai, China
Research Assistant, Supervior: Prof. Xiaohua Sun *July 2020 - Spet 2020*

- **Digital Twin for Enhancing Semantics in Sand Therapy**: Applied digital twins and computer vision to psychology and human-computer interaction to enhance the semantics of sandtray therapy to help visitors express themselves. Work presented in **J. Li**, S. Zhang, Y. Hu, P. Liu, and X. Sun, "Supporting Therapeutic Storytelling and Therapist's Neutrality in SandtrayTherapy Through a Digital Twin", submitted to 2021 ACM Designing Interactive Systems (DIS) conference.

College of Design and Innovation, Tongji University Shanghai, China

Research Assistant, Supervior: Dr. Weiwei Guo *July 2019 - May 2020*

- **Parasitic network structure for video crowd counting**: Proposed a novel architecture termed as "Relational Extractor"(RE) which models the multiplicative interaction features of adjacent frames, which extract the information of the number of pedestrians in the spatio-temporal dimension more efficiently. Work presented in S. Meng*, **J. Li***, W. Guo, Y. Lai, and J. Jiang, "PHNet: Parasite-Host Network for Video CrowdCounting", published in 2020 International Conference on Pattern Recognition(ICPR).

College of Civil Engineering, Tongji University Shanghai, China

Research Assistant, Supervisor: Prof. Miaomiao Zhang, Prof. Dalei Wang *Jan 2019 - Apr 2020*

- **Computer vision-based building apparent disease detection system**: Designed a building apparent disease detection device based on computer vision; Captured and stored avatars with multiple cameras; Used image stitching technology to obtain a panorama, and then use semantic segmentation (Deeplab V3 + Res-UNET) Detection of cracks.
- **Honors**: This project is a national-level innovation project and joined the 15th Venture Valley of Tongji University.

Practical Experience

Microsoft Research Asia (MSRA) Beijing, China

Fulltime Research SDE Intern *Nov 2020 - Present*

- **Data Analysis**: Optimized the interaction flow of data tools as UI/UX designer in the Innovation Engineering Group and and implemented them.
- **Human-Computer Interaction**: Worked as a full-stack engineer in Face SDK Team Data Sub Team to develop data related tools, involving data crawling, storage, processing, and analysis.

Pixelshift.AI Shanghai, China

Computer Vision Engineer Intern *Nov 2019 - May 2020*

- **Algorithm Research**: Conducted research on generative models and generative design; Used styleGAN for research and optimization of handwritten font generation; Developed data visualization UI using ipywidget.

TED Shanghai, China

Licensed Curator *Jan 2018 - Jan 2020*

- **TEDxSipingRoad**: Founder and licensed curator.
- **TEDxHuanglongRoad**: Co-curator and speaker coach.
- **TEDxChangning**: Co-curator.

Publications and Working Papers

- **Supporting Therapeutic Storytelling and Therapist's Neutrality in Sandtray Therapy Through a Digital Twin**: *2021, ACM Designing Interactive Systems (DIS) conference, First Author, Under Review*
- **PHNet: Parasite-Host Network for Video Crowd Counting**: *2020, International Conference on Pattern Recognition(ICPR), Joint First Author & Corresponding Author*
- **Identifying human interactions in built environment: deep learning analytics on camera data for urban vibrancy evaluation**: Working Paper
- **An Efficient Encryption Scheme for Neuromorphic Vision Sensors**: Working Paper

Selected Industrial Projects

- **Earth Fusion**: Used Oracle Spatial to store various types of GIS data and used Unity for visualization and analysis.
- **Tao Mirroring Posture Evaluation System**: Used computer vision to perceive and discern the user's posture in motion.
- **MimicSelf**: A STT, TTS, SDA-based lip-shaped video imitation pronunciation correction assistant.

Selected Awards

- **CCF Outstanding University Student Award**: Jointly recommended by the CCF permanent directors(three best students in the country each year).
- **Ranked 1st in China-U.S. Young Maker Competition Final(Shanghai)**: As a core member and lead developer, I led the team to 1st place in the final competition, which had 37 teams and over 200 participants.
- **CCF Certified Software Professional(350/500)**: Ranked **Top 0.57%** of all the historical contestants.

Technical Skills and Languages

- Skills: **Data Analysis and Visualization** (Julia, Python, C++, MATLAB, SQL, D3), **Spatial Analytics** (ArcGIS, QGIS, Oracle Spatial Studio), **Web Development** (React, Vue, HTML, CSS, JavaScript, D3), **Design and Modeling** (Maya, Unity3D, AutoCAD, Figma, Adobe XD, Adobe PS, Axure), **Tools** (PyTorch, TensorFlow, scikit-learn, MySQL, SQL*Plus, MongoDB, Spark, AWS, Azure, Linux, Docker, Git)
- Languages: English (Fluent), Chinese (Native)