

# CHI ZHANG

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## OBJECTIVE

Seeking a full-time software engineer position.

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## EDUCATION

- Master of Science (M.S.)**, Stanford University (GPA: 3.92/4.00) 09/16 – 06/18  
Mechanical Engineering (Focus: Computer Vision, Deep Learning, Mechatronics)
- Bachelor of Science (B.S.)**, Shanghai Jiao Tong University (GPA: 90.39/100) 09/12 – 06/16  
Mechanical Engineering (rank 1/184, *summa cum laude*)
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## WORK EXPERIENCE

- Software Engineer Intern**, Momenta.ai, Beijing, China 06/17 – 09/17
- Developed GTA V-based autonomous driving simulation platform in C++ for data collection and algorithm test. Main features include building scenarios (weather, time, location, vehicle, etc.), collecting vehicle data (speed, heading, dimensions, wheels, etc.), and controlling target vehicle via json
  - Wrote scripts in Python to clean raw data and generate ground-truth labels for training deep learning models
  - Trained and tested deep neural networks to predict car pose classification, wheel landing points and pillar locations
  - Calibrated game camera based on 2D and 3D correspondences extracted from GTA V
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## SOFTWARE PROJECTS

### Greedy Layerwise CNN Training for Weakly Supervised Object Localization

- Proposed, trained and tested weakly supervised end-to-end neural network for solar panel localization
- Used global average pooling layer to preserve model's localization ability and applied greedily layerwise training to improve its ability of extracting image features
- Achieved 7% higher precision in classification and 20% better localization than benchmark ([poster](#))

### OpenCV Lane Line Detection Pipeline for Self-driving Cars

- Developed software pipeline to detect lane lines in images and videos for self-driving cars using OpenCV library
- Applied Gaussian smoothing to suppress noise and spurious gradients, ran Canny edge detector and Hough transform to obtain steady and continuous lane lines ([Github](#))

### End-to-end Scene Restoration and Object Removal

- Designed and proposed end-to-end pipeline for removing unwanted tourists in scenery pictures and videos
- Implemented person detector using pre-trained HOG in OpenCV with linear SVM to perform pedestrian detection on images and wrote scripts to generate mask for inpainting
- Collaborated with team members to integrate pedestrian detection with inpainting to complete pipeline ([slides](#))

### The Island: A First-person Tower Defense Game on Mobile VR

- Developed first-person tower defense game for mobile VR for Google Cardboard using Unity and Google VR SDK
- Built 3D terrain and designed main features, such as game logic, special effects, enemy AI, audio and animation
- Implemented game features using Unity API in C# with teammate and deployed game on iOS devices ([Github](#))

### Smart Fit

- Designed, built and tested Android-based fitting room assistance system with features of clothes identification, item request, personalized recommendations ([Github](#), [website](#))
- Developed Android app with Google Firebase as backend interfacing with Arduino via Bluetooth and RFID

### Siege Tank Robot

- Designed, built and tested an autonomous racing robot that navigates through a landscape with sensor system
  - Implemented hierarchal state machines and PID control with robust embedded code using event-driven framework, state charts, interrupts and SPI communication protocol ([website](#))
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## SKILLS & LANGUAGES

- Proficient in C++/Python, familiar with Java/C, Tensorflow, Keras, Caffe, Matlab, Linux, git, LaTeX, Markdown
  - Languages: Mandarin (native), English
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