

Hao GONG

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Education

<b>Université de Grenoble</b> Ph.D. in Signal and Image Processing, <u>GIPSA (Grenoble Images Parole Signal et Automatique)-Lab</u> • Research Topic: Medical Image Segmentation and Classification. Publications at ICIP <sup>[GD12a][Kéc+14]</sup> and ICIAR <sup>[GD12b]</sup> • Thesis: Segmentation d’Images Couleurs et Multispectrales de la Peau <sup>[Gon13]</sup> • Advisor: Prof. Michel Desvignes	2010/01 – 2013/06 Grenoble, France
<b>Southeast University</b> M.S. in Pattern Recognition & Intelligent System, School of Automation • Research Topic: Image Inpainting and Restoration. Related work patented <sup>[4]</sup> . • Thesis: Study on Digital Image Inpainting and Its Application in Blotches Removal in Video Image Sequences. • Advisor: Prof. Xiaohui Yuan • Awards: Second-Class Scholarship of Southeast University (2007)	2007/09 – 2009/07 Nanjing, China
<b>Southeast University</b> B.S. in Automation • GPA 85/100; Ranked 12/120 • Honors: Excellent Student of Southeast University (2004); Excellent Student of School of Automation (2007)	2003/09 – 2007/07 Nanjing, China

Work Experience

<b>Enjoy Move Technology Co., Ltd.</b> <i>Expert in Autonomous Driving/Visual Perception Tech Lead</i> • Enjoy Move is an autonomous driving start up with the mission of becoming a bridge connecting IC and automated driving technology realization. • In charge of all the research and engineering related to visual perception and localization problems (from visual-semantic feature representation to mapping and localization optimization) • Automated Valet Parking (AVP) build from ground-up a semantic visual mapping-localization framework with multi-sensor fusion (imu/wheel encoder/) in a Bird’s Eye View (BEV) semantic features road markings (arrow/parking spot/zebra crossing/speed bump) more robust, • Global matching Dynamic Time Warping (DTW) • Closely worked with planning and control engineers to improve the driving behavior of AVP • (Ceres Solver/ROS2/C++) • Recruit	2022/09 – 2023/07 Shanghai, China
<b>Landmark Vision Technology Coa., Ltd.</b> <i>Co-Founder/Algorithm Scientist - lead core algorithm research and product development.</i> • Landmark Vision is an early stage startup aiming to provide state-of-the-art AI solution to offline businesses, empowering and upgrading vertical industries. • Lead a core R&D project for real-time and high accuracy 2.5D human tracking • Develop a framework (PyTorch/TensorRT) • Design and implement • Closely working with • This Jupyter notebook uses the Deep SORT algorithm and person detection model to detect the person in each frame of the video and the reidentification model to match a pair of images of a person. Find out how you can analyze a video sequence to detect people, uniquely identify them, and track them until they leave the frame.	2018/10 – 2022/07 Shanghai, China
<b>OFilm Group Co., Ltd.</b> <i>Expert in ADAS/Auto-Driving R&amp;D</i> • Build a calibrated and optimized vehicle motion model based on Ackerman Steering/Levenberg-Marquardt algorithm, serving as base of most ADAS features of the company. (C/C++) • Design and implement independently MOD Detection and Tracking of Moving Objects from Non-stationary Fisheye Cameras(PC and TI Jacinto5) • Vision based object detection, tracking and distance measurement • Segment object from background via SfM • feature-level tracking (Lucas-Kanade optical flow) and clustering feature confidence (epipolar constraint with motion model compensation), object detection(feature/spatial-temporal clustering) and tracking (kalman filter), in-vehicle fisheye camera (C++/OpenCV),	2016/06 – 2018/09 Shanghai, China

- increase/improve detection rate over 95%, false alarm rate less than 1% real time (15fps) upon delivery to top domestic OEMs with initial mass-production orders of 200,000 units and cumulative sales of 243 million RMB. Related work is patented<sup>[2]</sup>.
- Leading a core R&D project for Trained Parking (A Long Distance Autonomous Parking Function with Route Memory) (C++/OpenCV/DBoW) achieving mapping distance up to 200m and centimeter-level error of localization
- redesign closely worked with planning and control engineers to improve the driving behavior of the vehicle by optimizing the output of the lane estimation.
- Recruited and mentored 5 junior engineers on my team

### Third Research Institute of Ministry of Public

Research Scientist

2013/09 – 2016/05

Shanghai, China

- Develop the main pipeline for vehicle image retrieval
- improve, Related work is patented<sup>[3]</sup>
- Deformable Parts Model (DPM)
- lead a team of

### Academic Services

**Conference Reviewer:** ICIP2014, ACCV2022, ICASSP2023, ICASSP2024

### Publications

[[Link](#)] to my Google Scholar Profile.

- [GD12a] H. Gong, and M. Desvignes, “Quantification of pigmentation in human skin images,” in *19th IEEE Int. Conf. Image Process. (ICIP 2012)*, Oct. 2012A, pp. 2853–2856, doi: 10.1109/ICIP.2012.6467494.
- [GD12b] H. Gong, and M. Desvignes, “Hemoglobin and melanin quantification on skin images,” in *9th Int. Conf. Image Anal. Recognit. (ICIAR 2012)*, Berlin, Heidelberg, Jun. 2012B, pp. 198–205, doi: 10.1007/978-3-642-31298-4\_24.
- [Gon13] H. Gong, “Segmentation d’images couleurs et multispectrales de la peau,” Thesis, Université de Grenoble, 2013. [Online]. Available: <https://theses.hal.science/tel-00934789>
- [Kéc+14] R. Kéchichian, H. Gong, M. Revenu, O. Lezoray, and M. Desvignes, “New data model for graph-cut segmentation: application to automatic melanoma delineation,” in *21st IEEE Int. Conf. Image Process. (ICIP 2014)*, Oct. 2014, pp. 892–896, doi: 10.1109/ICIP.2014.7025179.
- [Tan+20a] T. Tang, H. Wang, X. Zhou, and H. Gong, “Understanding electric bikers’ red-light running behavior: predictive utility of theory of planned behavior vs prototype willingness model,” *J. Adv. Transp.*, vol. 2020, p. 7097302, Feb. 17, 2020A, doi: 10.1155/2020/7097302. [Online]. Available: <https://doi.org/10.1155/2020/7097302>
- [Tan+20b] T. Tang, Y. Guo, X. Zhou, Q. Shi, and H. Gong, “Identifying psychological factors of e-bike riders’ traffic rule violating intention and accident proneness in china,” in *20th COTA Int. Conf. Transp. Professionals (CICTP 2020)*, Aug. 2020B, pp. 4420–4432, doi: 10.1061/9780784482933.379.
- [Wei+22] Y. Wei, D. Niu, H. Gong, Y. Dong, and X. Chen, “Pose estimation and occlusion augmentation based vision transformer for occluded person re-identification,” in *Jiangsu Annu. Conf. Automat. (JACA 2022)*, vol. 2022, Nov. 2022, pp. 82–87, doi: 10.1049/icp.2023.0150.

### Patents

- [1] H. Gong, L. Mei et al. “System and method for realizing gait recognition by virtue of fusion of depth information and gray-scale information”. C.N. Patent 104200200, filed Aug. 28, 2014, and issued Nov. 10, 2017.
- [2] H. Gong, B. Duan et al. “Moving object detection system, moving object detection method and vehicle”. C.N. Patent 109598747, filed Sep. 30, 2017, and issued Apr. 09, 2019.
- [3] H. Gong, T. Tang et al. “Traffic checkpoint vehicle intelligent retrieval system and method based on annual inspection sign”. C.N. Patent 110807415, filed Oct. 31, 2019, and issued Apr. 07, 2023.
- [4] H. Gong, F. Deng et al. “Digital video file restoration method and device”. C.N. Patent 111127376, filed Dec. 13, 2019, and issued May 23, 2023.
- [5] H. Gong, D. Niu et al. “Intelligent building online cross-camera multi-target tracking method”. C.N. Patent 114240997, filed Nov. 16, 2021, and issued Jul. 28, 2023.
- [6] H. Gong, Y. Wei et al. “Shielding pedestrian re-identification method based on attitude estimation and Transformer”. C.N. Patent Application 202211389204, filed Nov. 08, 2022. Patent Pending.