**KE LI**

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| **EDUCATION** | | | | | | |
| **Cornell University** | Jun. 2021 - Aug. 2026 (Expected) | | | | | |
| *Ph.D. Student in Information Science, School of Computing and Information Science, Advisor: Prof.* [*Cheng Zhang*](https://www.scifilab.org/) | | | | | | |
| **Shanghai Jiao Tong University (SJTU)** | Sept. 2016 - Jul. 2020 | | | | | |
| *B.S. in Information Engineering, School of Electronic Information and Electrical Engineering* | | | | | | |
| * **Overall GPA**: 91.41/100 (Rank **3/158**) **Major GPA**: 91.16/100 (Rank **5/158**) * Outstanding Graduates from Universities in Shanghai **(Top 5%)** | | | | | | |
| **Carnegie Mellon University (CMU)** | | | Jul. 2019 - Sept. 2019 | | | |
| *Research Assistant in Department of Electrical and Computer Engineering, Supervisor: Prof.* [*Swarun Kumar*](https://swarunkumar.com/) | | | | | |  |
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| **PUBLICATIONS** | | | | | | |
| [**Locating Everyday Objects using NFC Textiles**](https://dl.acm.org/doi/10.1145/3412382.3458254)**,** Jingxian Wang, Junbo Zhang, **Ke Li**, Chengfeng Pan, Carmel Majidi and Swarun Kumar, The 20th International Conference on Information Processing in Sensor Networks (IPSN '21). ***Best Paper Award*** ***&*** ***Best Presentation Award*** | | | | | May 2021 | |
| * Proposed a localization system design of a MIMO-enabled NFC reader which locates surrounding NFC tags as well as untagged conductive objects. * The system achieved few centimeter-accurate location tracking of both tagged and untagged objects in proximity. * The approach achieved an overall range of 20 cm of location tracking from the textile NFC reader. | | | | | | |
| [**A Constant Factor Approximation for *d*-Hop Connected Dominating Set in 3-Dimensional Wireless Network**](https://ieeexplore.ieee.org/document/8765348)**, Ke Li**, Xiaofeng Gao, Fan Wu and Guihai Chen, IEEE Transactions on Wireless Communications (TWC), vol. 18, no. 9, pp. 4357-4367, 2019. | | | | | Sept. 2019 | |
| * Designed a scheme to select cluster heads for a homogeneous network in a three-dimensional situation based on the concept of *d*-hop connected dominating set. * Proposed a distributed approximation algorithm and proved its approximation ratio. * Conducted numerical experiments with 100 nodes randomly distributed in a three-dimensional Wireless Sensor Network (WSN) to analyze and prove the efficiency of the algorithm. | | | | | | |
| [**QLEC: A Machine-Learning-Based Energy-Efficient Clustering Algorithm to Prolong Network Lifespan for IoT in High-Dimensional Space**](https://dl.acm.org/citation.cfm?id=3337926)**, Ke Li**, Haowei Huang, Xiaofeng Gao, Fan Wu and Guihai Chen, The 48th International Conference on Parallel Processing (ICPP '19). | | | | | Kyoto, Japan  Aug. 2019 | |
| * Improved Distributed Energy Efficient Clustering (DEEC) algorithm with energy constraints and cluster coverage ranges of sensors in 3-dimensional WSNs taken into consideration. * Adopted Q-learning scheme to choose cluster heads for routing packets of each sensor. * Solved the Energy-Efficient Clustering Problem (EECP), which is an NP-Complete problem in the running time , whereis the cluster number andis the number of updates that Q-learning needs to converge. * Conducted experiments with the algorithm and outperformed k-means clustering and an FCM-based algorithm in terms of network lifespan, packet delivery rate, and transmission latency. | | | | | | |
| **RESEARCH & CONTEST EXPERIENCE** | | | | | | |
| **Design and Implementation of Broadcast Mechanism in Large-Scale IoT**  *Undergraduate Thesis at SJTU, Supervisor: Prof.* [*Xiaohua Tian*](http://iiot.sjtu.edu.cn/xtian/) | | Sept. 2019 – Jun. 2020 | | | | |
| * Designed and implemented the first parallel downlink scheme for backscatter communication. * Proposed the parallel communication and control system under the broadcast mechanism in large-scale IoT. * Verified the feasibility of my design on Keysight ADS, a simulation software, and on a PCB-based prototype. | | | | | | |
| **Crowdsourcing Task Assignment Strategy and Optimization Based on Social Network** | | Nov. 2018 – Dec. 2019 | | | | |
| *The 18th Innovation and Practice Plan for Undergraduates of SJTU, Supervisor: Prof.* [*Xiaofeng Gao*](http://www.cs.sjtu.edu.cn/~gao-xf/) | | | | | | |
| * Optimized the task assignment scheme in spatial crowdsourcing and proposed efficient truth inference algorithms. * Measured the fairness of the whole system using Jain's Fairness Index after a preliminary experiment. * Processed the data and conducted experiments on online crowdsourcing platforms. | | | | | | |
| **Modeling Trends of Global Languages and Location Options for New Offices**  *American Mathematical Contest in Modeling, Meritorious Winner (Top 10%), Team leader* | | | Feb. 2018 | | | |
| * Designed a Speaker Prediction Model that used study time of a language in a country to predict the distribution and numbers of various language speakers over time in different countries, based on the 10,000-Hour Rule. * Proposed a Location Selection Model to provide location options for new offices using the Analytic Hierarchy Process and optimized the options with the Genetic Algorithm. | | | | | | |
| **Development of Immersion Stereometric Manipulation Replacement Robot**  *The 32nd Participation in Research Program of SJTU* | | | Apr. 2017 - Oct.2017 | | | |
| * Designed binocular stereo glasses to observe the remote scene; Controlled the robot with a handle and gloves. * Received an A grade as the team leader and best performer in the project. | | | | | | |
| **HONORS & AWARDS** | | | | | | |
| **A-level Outstanding Scholarship of Shanghai Jiao Tong University (Top 1%)**  *Scholarship awarded to outstanding students at SJTU*  **Tang Lixin Scholarship (Top 0.2%)**  *Scholarship founded by Mr. Tang Lixin and awarded to Top 60 students at SJTU*  **National Scholarship\*2 (3/158, 1/158)**  *Top scholarship awarded to undergraduates in China for their achievements in academics*  **B-level Outstanding Scholarship of Shanghai Jiao Tong University\*2 (Top 5%, Top 2%)**  *Scholarship awarded to outstanding students at SJTU*  **Wen-Yuan Pan Scholarship (Top 5%)**  *Scholarship founded by Wen-Yuan Pan Foundation* | | | | Nov. 2019  Oct. 2019  Oct. 2018, 2019  Nov. 2017, 2018  Dec. 2017 | | |
| **EXTRACURRICULAR ACTIVITIES & LEADERSHIP** | | | | | | |
| **Development Program for Excellent Student of SJTU,** *Group Leader* | | | Apr. 2017 – Jul. 2020 | | | |
| * Organized various activities, such as lectures, speech contests, volunteer programs, and summer social activities. * Awarded Outstanding Participant Title in the 2018 Summer Social Practice of SJTU (Top 2%). | | | | | | |
| **Master Distinguished Lecture, SJTU,** *Director* | | May. 2017 - Sept. 2018 | | | | |
| * Organized professional academic lectures and invited scholars for speeches, including 8 Nobel Prize Laureates. * Oversaw the entire process of lecture, including brand building, publicity, directing, reception and recognition. | | | | | | |
| **TECHNICAL SKILLS** | | | | | | |
| * **Programming Language**: C / C++, Python, Java * **Platforms and Tools**: MATLAB, NS2,LaTeX, LabVIEW | | | | | | |
| **ENGLISH PROFICIENCY** | | | | | | |
| * **TOEFL**: 108 (R30 L26 S23 W29) **GRE**: 321 = V-152 (54%) + Q-169 (95%), AW-4.0 (57%) | | | | | | |