

JINGWEI LU

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Proven talent at planning, orchestration and execution system covering science, technology and management. Technical strength in high-level & low-level system design (HLD & LLD), science strategic design, ambiguity taming, cross-functional collaboration, resources coordination, task planning, etc. Exceptional on aligning application design strategy and objectives with established technology and research paradigms to achieve maximum operational impacts with minimum obstacles. Growth and innovative mindset over software feature invention and system performance optimization. Skilled professional on keen interpersonal, communicational, organizational and resource allocation expertise. Solid research experience with 15+ publications, 50+ articles review and 400+ citations.

PROFESSIONAL EXPERIENCE

SENIOR SOFTWARE DEVELOPMENT ENGINEER (L6, Manager Level) at [AMAZON.COM, INC.](#) 03/2022 - Now

- Core technical contributor in Sub Same-Day (SSD) planning team serving world-wide order deliveries within average 6 hours between customer click and promised delivery time. Responsibilities covering a wide scope of planning services for stations orchestration and transporters execution: route planning, dispatch planning, sector planning, pick planning, geospatial processing.
- Sole tech lead on the development of the next generation SSD planning system for the combined optimization of Under-The-Roof (UTR i.e. delivery station) orchestration and On-The-Road (OTR i.e. transporter) execution efficiency.
 - High-level design (HLD) of SSD planning system functionality and architecture concerning multiple workflows and services, aligning objectives towards optimal in-station operational efficiency and on-road transiting and servicing performance.
 - Low-level design (LLD) requirements specification for the individual service components creation or evolvement with functionality decomposition, artifacts model definition, storage request formation, race condition handling, etc.
 - Lead collaboration between multiple cross-functional planning, orchestration and execution teams, including customer shopping, packages snapshotting, packages picking orchestration, route planning, route dispatching, transporter assignment.
- Strategic and technical contributions to the adaptive sector planning services for SSD delivery stations with algorithm design, system design, tech implementation, shadow testing, station piloting and launching, etc..
 - Develop contraction hierarchy based data structure over station jurisdiction road network using effective shortcuts insertion and vertices contraction, enforcing one-way search path and reducing the planar graph down to one dimension.
 - Design, implement and test shortest path search by contraction hierarchy for packages clustering, reducing time complexity from $O(N^2)$ down to $O(N)$. The search runtime is shortened by in average 20x and up to 35x over 50+ stations.

SENIOR PRINCIPAL SOFTWARE ENGINEER (L7, Senior Manager Level) at [CADENCE DESIGN SYSTEMS, INC.](#) 01/2014 - 02/2022

- Core R&D team member for [Innovus Implementation Systems](#), the top-2 software product in EDA industry.
- Solely incubated the [mixed placer technology](#). Lead a **cross-functional R&D team** for the technology prototyping, including literature research, mathematical derivation and modeling, proof of concepts, algorithm development, empirical validation, etc.
 - Devised and integrated the technology into the automated generation framework of complex floorplans for hundreds of macros instead of utilizing manually designed macro layout.
 - Implemented and verified this technology with significantly improved system performance, power consumption, and chip area (manufacturing cost) each by up to 10%, respectively.
 - Cut down the placement turnaround time from several weeks of manual labor to only a few hours of software automation, which dramatically shortened the time-to-market of IC design products and saved the engineering resources.
 - Received broad recognition from many customers, procured and deployed a **supplemental license** for this new feature of mixed placement technology, producing **significant additional revenue** by this new license every fiscal year.
- Devised and implemented a multi-thread multi-level generalized recursive **partitioner** to support multiple **cross-functional software products**. This utility minimizes the user specified costs (e.g. total network cuts, network levels), satisfies the constraints (e.g., partition weight balancing, capacities and preassignment), and consumes negligible runtime.

AWARDS AND HONORS

Best paper nomination (1st author) at *ACM/IEEE DAC 2014* (12 out of 174 papers, 787 submissions, top 1.5%) 06/2014
Best paper award (1st author) at *IEEE ISQED 2013* (3 out of 114 papers, top 2.6%) 03/2013
Best paper nomination (1st author) at *ACM/IEEE ASP-DAC 2010* (13 out of 115 papers, 340 submissions, top 3.8%) 01/2010

EDUCATION AND CREDENTIALS

PH.D. IN COMPUTER SCIENCE, *UNIVERSITY OF CALIFORNIA, SAN DIEGO*, GPA 3.79 09/2010 - 12/2014
M.PHIL. IN ELECTRONIC AND INFORMATION ENGINEERING, *THE HONG KONG POLYTECHNIC UNIVERSITY*, GPA 4.00 02/2008 - 02/2010
B.SC. IN INFORMATION ENGINEERING, *ZHEJIANG UNIVERSITY*, MAJOR GPA 3.87 10/2002 - 06/2006