James Di

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EDUCATION

University of California, San Diego — San Diego, CA
M.S in Computer Science, GPA: 3.76/4.00 — 06/2020

Pomona College — Claremont, CA
Bachelor of Arts in Computer Science and Mathematics, GPA: 3.56/4.00 — 05/2016

PROFESSIONAL EXPERIENCE

TikTok & ByteDance — Mountain View, CA
Machine Learning Engineer — 09/2020 - Present

- Working on ads experience prediction and optimization problems on Tiktok & ByteDance Ads platform
- Aggregated statistical data and implemented online serving for improving user-level ads experience ranking
- Improved auction formula on ads experience bids to provide better engineering scalability and fairness for users

Existential Robotics Lab, UC San Diego — San Diego, CA
Systems Engineer — 07/2020 - 09/2020

- Built a pipeline for integrating simulated IMU measurement and real camera images in ROS for Kitti Odometry
- Demonstrated VIO(Visual-Inertial Odometry) using MSCKF algorithms on the fused datasets
- Implemented dead-reckoning and kalman-prediction algorithms on the datasets

Advanced Robotics and Control Lab, UC San Diego — San Diego, CA
Graduate Researcher — 09/2018 - 09/2020

- Generated optimal arm placement for surgeries via constraint optimization, speeding up pre-op setup time by 2x
- Modelled scores of collision and reachability for the da Vinci surgical system using regression learning techniques
- Designed and implemented a method for modeling collision-free configurations of high DOF robots with deep generative models (VAE)

Amazon Lab126 — Sunnyvale, CA
Software Engineer — 07/2017 - 06/2018

- Designed and implemented the in-production geolocation-triggered routine feature, enabling Alexa users to trigger device actions such as playing music based on geolocation
- Built RESTful microservices, NoSQL databases and notification systems for storing and querying dynamic geolocation
- Worked with three different teams ranging from iOS/Android platforms to Alexa Automation to ensure end-to-end design compatibility, feature implementation and testing

Amazon Web Services — Seattle, WA
Software Engineer — 09/2016 - 07/2017

- Delivered independently an in-production feature that allows AWS Simple Storage Systems (S3) clients to inventory stored objects by prefix filtering, utilizing Apache Spark on EMR
- Launched a catalog of S3 as member of a eight-person team, which aggregates daily metadata of all objects stored on S3 and is used as the data source for multiple MapReduce applications

ENGINEERING SKILLS

Methods: Deep Learning, Statistical Modeling, Reinforcement Learning, SLAM, Motion Planning
Programming Language: Java, Python, Matlab, Javascript, Ruby, Shell, C++, SQL, LaTeX
ML and Robotics technologies: Torch, Tensorflow, SkLearn, ROS Kinetic, Rviz, Moveit!, OpenVIO, VRep
Web technologies: AWS suite, Kafka, Hive, Grafana, Rails, Jquery, Git, Docker

PUBLICATION

James Di, Mingwei Xu, Nikhil Das, Michael Yip. 2021. *Optimal Multi-Manipulator Arm Placement for Maximal Dexterity during Robotics Surgery*. In International Conference on Robotics and Automation with RAL option (ICRA/RAL). Xi'an, In Review.

James Di, Erica Flapan, Spencer Johnson, Daniel Thompson, and Christopher Tuffley. *Weakly linked embeddings of pairs of complete graphs in* $\mathbb{R}^3$. arXiv preprint arXiv:2012.11030 (2020).