Shunan Jiang

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EDUCATION

University of California, Berkeley 09/2019 - Now
Ph.D. program in Industrial Engineering and Operations Research

The Chinese University of Hong Kong (CUHK), Shenzhen, China 09/2015 - 05/2019
B.S. in Computer Science and Engineering

RESEARCH

Optimal Asynchronous Multi-Sensor Registration in Three Dimensions 06/2017 – 06/2018
Research Assistant, Shenzhen Research Institute of Big Data ***Supervisor: Prof. Zhi-Quan Luo***

- Developed and validated a novel sensor registration strategy for estimating sensor biases from asynchronous measurements.
- Proposed a nonlinear least squares (LS) formulation for eliminating the need for target states and developed a block coordinate descent (BCD) scheme with semidefinite relaxation.
- Implemented the algorithms; experiment results exhibited nearly zero optimality gap.
- Delivered a rigorous proof concerning solution's optimality in noise-free case.

Large Scale Dataset Establishment and Image Classification 12/2017 - 03/2018
Research Intern, SenseTime Group Ltd. ***Supervisor: Prof. Ping Luo***

- Built a clothing image dataset with 5M+ data points; individual contributions include:
  - Data crawling, pre-processing, cleansing and labelling.
  - Task-dependent dataset annotation, covering attribute prediction, keypoint detection, and customer-to-shop clothes matching.
- Conducted image classification with ResNet and Differentiable Neural Computer (DNC)
  - Introduced inter-layer memory to ResNet for enabling the memorization of information during testing.
  - Leveraged ImageNet data to train, validate and test the developed model; obtained favorable results.

PUBLICATIONS

- **Jiang, S.,** Pu, W., Luo, Z., *Optimal Asynchronous Multi-Sensor Registration in Three Dimensions*. 2018 IEEE Global Conference on Signal and Information Processing (GlobalSIP)

COURSEWORK & PROJECTS

Comparative Studies of Optimization Algorithms 09/2018 - 12/2018

- Implemented several optimization algorithms for comparison on synthetic functions, including different versions of gradient descent, Nesterov's acceleration, Newton's method, Gauss-Newton method, etc. Analyze the convergence rate.

Optimal Travelling Planner 07/2018 - 08/2018

- Formulated an optimize model for travelling planning problem with multi-stop route planning.
- Collect geographical data from 1500 top tourist attractions in China from government websites and Google Map Platform API.

- Employed divide-and-conquer strategy, customized two versions of genetic algorithms, convert the program into a hierarchy of Travelling Salesman Problem (TSP) and a Multiple Travelling Salesman Problem (mTSP).
- Performed sensitivity analysis and result interpretation.

Development and C++ Implementation of A Linear Regression Toolkit 03/2017 - 05/2017

- Developed a user-friendly regression tool in C++ with decent robustness for input data formats, detailed statistical properties output, GUI-based user interaction, intuitive graph visualization, and flexibility in managing contaminated data. Fully leveraged object-oriented programming paradigm.

HONORS & AWARDS

- National Scholarship (Top 0.02% of CUHK, SZ, 2018);
- First Class Academic Scholarship (Top 0.6% of CUHK, SZ; 2016 - 2018);
- Dean's List (Top 10% of CUHK, SZ, 2016 – 2018);
- Undergraduate Research Award (5% of CUHK, SZ, 2017 & 2018);
- Tencent WeChat Campus Card "Digital Star" (2017)

INTERNSHIP EXPERIENCES

Front-end Developer Intern, WeChat Campus Card System and MiniApp 06/2017 - 12/2017

- Developed a WeChat-based campus card system and an associated MiniApp which unifies permissions and payments management while providing miscellaneous functions, including schedule management, sharing of announcements and news, etc.
- Systematically practiced the software engineering workflow, including requirement identification, design, implementation, testing, and maintenance.
- Deployed and accumulated 4K+ on-campus users within six months; innovation and technical merit acknowledged by a "Digital Star" award from WeChat.

CUHK(SZ) TA for Multivariable Calculus (MAT1002) 02/2017 - 05/2017

CUHK(SZ) TA for Single Variable Calculus (MAT1001) 09/2016 - 12/2016

SKILLS

Programming Languages/Software: C/C++, Python, Julia, MATLAB, R, JavaScript, MySQL, HTML, CSS