Khoa Trinh

Contact Information

Department of Computer Science,
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Research Interests

Design and Analysis of Algorithms, Approximation Algorithms, Randomized Algorithms, Combinatorial Optimization, Machine Learning.

Education

University of Maryland, College Park, USA.

Ph.D., Computer Science. (2012 – present)
Advisor: Prof. Aravind Srinivasan

University of Science, Ho Chi Minh City, Vietnam.

B.S., Advanced Program in Computer Science. (2006 – 2011)
Advisor: Dr. Tien B. Dinh.

Publications

D. Harris, T. Pensyl, A. Srinivasan, and K. Trinh, "Fairness in Resource Allocation". (submitted)

J. Byrka, T. Pensyl, B. Rybicki, J. Spoerhase, A. Srinivasan, and K. Trinh, "An Improved Approximation Algorithm for Knapsack Median Using Sparsification". *Proc. European Symposium on Algorithms* (ESA), 275-287, 2015. (Accepted for publication in Algorithmica.)

J. Byrka, T. Pensyl, B. Rybicki, A. Srinivasan, and K. Trinh, "An Improved Approximation for k-median, and Positive Correlation in Budgeted Optimization". *Proc. ACM-Siam Symposium on Discrete Algorithms* (SODA), 737-756, 2015. (This paper will appear in the special issue of ACM TALG devoted to selected papers from SODA 2015.)

N. Ramakrishnan et al., "Beating the news" with EMBERS: Forecasting Civil Unrest using Open Source Indicators. *Proc. ACM Conference on Knowledge Discovery and Data Mining* (KDD), 1799-1808, 2014. (See http://arxiv.org/abs/1402.7035 for the full author-list)

K. Trinh, J. Ferland, and T. Dinh, "A Stochastic Optimization Method for Solving the Machine-Part Cell Formation Problem". *International Conference on Intelligent Computing* (ICIC), 162-169, 2011.

K. Trinh, N. Dang, and T. Dinh, "An Approximation Approach for a Real-World Variant of Vehicle Routing Problem". *Asian Conference on Intelligent Information and Database* (ACIIDS), 87-96, 2011.

Honors and Awards

◦ University of Maryland, Computer Science Department Dean's Fellowship, 2012 – 2014.

◦ ACM International Collegiate Programming Contest (ACM-ICPC) Awards:

- Honorable Mention in ACM-ICPC World Finals 2011, Orlando, Florida, USA.
  (Only 105 teams were selected from 8305 teams worldwide).
- Ranked $4^{\text{th}}/67$ in ACM-ICPC Asia Regional Contest 2010, Kuala Lumpur, Malaysia.
- Honorable Mention in ACM-ICPC World Finals 2010, Harbin, China.
  (Only 100 teams were selected from 7319 teams worldwide).
- Ranked $3^{\text{rd}}/60$ (Third Prized) in ACM-ICPC Asia Regional Contest 2009, Phuket, Thailand.

- Ranked 2^{nd}/69 (First Prized) in ACM-ICPC Asia Regional Contest 2009, Manila, Philippines.
- Ranked 3^{rd}/135 (First Prized) in ACM-ICPC Asia Regional Contest 2008, HCMC, Vietnam.

◦ Silver Cups in the Vietnamese Olympiad in Informatics for Undergraduates, 2008 and 2009.

Talks

◇ An Improved Approximation Algorithm for Knapsack Median. Capital Area Theory Seminar (CATS) - Fall 2015. University of Maryland.

◇ "Improved Approximation for k-median, and Near Independence in Dependent Rounding," at the 22nd International Symposium on Mathematical Programming (ISMP). July 2015. Pittsburgh, PA.

Professional Services

◇ Reviewer for ACM-SIAM Symposium on Discrete Algorithms (SODA).

◇ Reviewer for ACM Transactions on Algorithms (TALG).

Work Experience

◇ 05/2016–08/2016: Applied Scientist at Microsoft (internship).
- Bing Native Ads Team.
- Worked on the discount bidding problem for Native ads.

◇ 05/2015–08/2015: Applied Scientist at Microsoft (internship).
- Bing Core Relevance Team.
- Implemented a pairwise ranking algorithm for L3-reranking.

◇ 05/2014–08/2014: Software Engineer at Oracle (internship).
- NGS data analysis using Hadoop's MapReduce to speed up the sequence alignment phase.

◇ 01/2012–07/2012: Software Developer at Misfit Wearables (internship).
- Implemented (in Objective C) several parts of Digital Health Summer Summit, an iPhone app.

Academic Experience

◇ 02/2013–present: Research Assistant at the University of Maryland, College Park.

◇ Teaching Assistant at the University of Maryland, College Park: CMSC131 – Object-Oriented Programming I (Fall 2012), CMSC330 – Programming Languages (Fall 2013), CMSC651 – Analysis of Algorithms (Fall 2013), CMSC250 – Discrete Structures (Spring 2016), CMSC 216 – Introduction to Computer Systems (Fall 2016).

◇ 2011–2012: Research Assistant & Teaching Assistant at the University of Science, VNU.

◇ 2008–2011: Assistant Coach of teams from the University of Information Technology for the ACM-ICPC.

Projects

◇ Optimizing healthcare facility location for epidemic response
- Joint work with a team at Virginia Tech; Objective: choose *optimal* locations to place Ebola Treatment Units (ETU).

◇ EMBERS
- Joint work with a team at Virginia Tech; Implemented (in C++ and Python) an algorithm to solve a variant of the non-crossing matching problem.

Technical Skills

◇ Languages: C/C++, Java, C#, Python, XMTC, ICE, LaTeX, Go
◇ Tools: Mathematica, Matlab, Gurobi